The

AMERICAN RIFLEMAN



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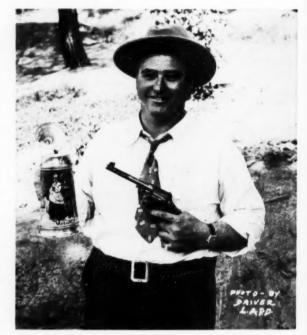
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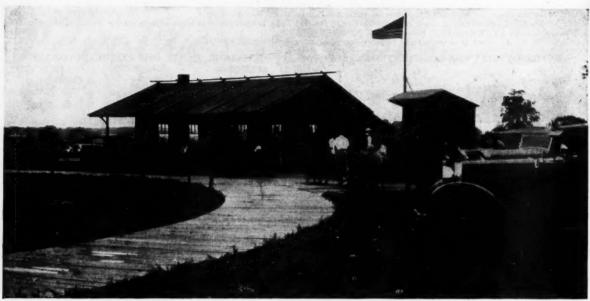
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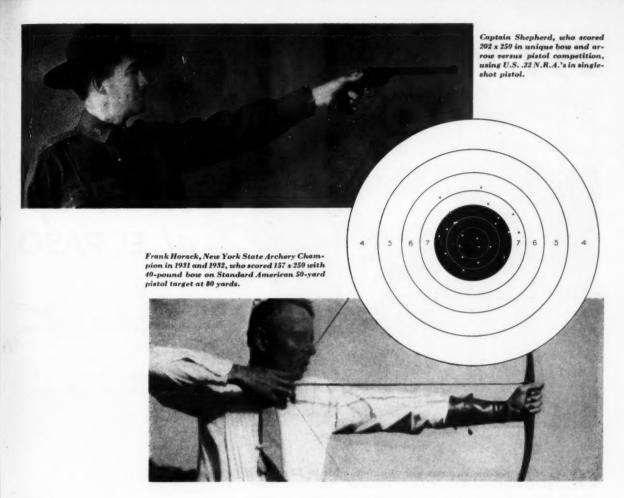
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BULLETS OUTSCORE ARROWS IN SPECIAL MATCH OF EXPERTS

Pistol Leads Bow at End of 25 "Shot"

Match at 80 Yards with

Score of 202 x 250

In a unique match at Wandamere Ranch, Buffalo, recently, Captain Paul A. Shepherd, Coach of Buffalo Police Pistol Team, defeated Frank Horack, State Archery Champion, 202 to 157, each using his favorite weapon at 80 yards on a standard American pistol target with a three-inch bull's-eye.

The Horack-Shepherd match was preceded by a similar competition indoors during the past winter, when Mr. Horack challenged and beat a pistol shooter of the Buffalo Police Department at 60 feet.

This match was followed by another indoor match at the same distance, which brought Mr. Horack and Captain Shepherd together for the first time, the latter winning the event.

As a result of this, the 80-yard match on an outdoor range was staged with the results indicated above.

Captain Shepherd used U. S. .22 N. R. A. Long Rifle cartridges in a single-shot pistol and his score, at 80 yards, is a fine testimonial to his marksmanship as well as to the long-range accuracy of the ammunition he shot.



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AMMUNITION

WINCHESTER



Model 52 land PRECISION clean-up at EL PASO



Paul Wright (left) and Sergt. B. F. Leonard, (right), first and second respectively in the United States Trophy N. R. A. Individual Match at El Paso, first in the Far Southwest Two-Man Team Match and second in the Hercules Two-Man Team Match. Trophy is the United States award for the winner in the Individual Match.

ON top of the notable victories with Winchester Model 52 and Precision at Camp Perry, the small-bore tournament of the Eighth Corps Area Matches at El Paso, drove another clincher nail into the evidence of Winchester supremacy in small-bore rifle equipment. Model 52

again dominated the field completely in the shooters' selection of an accuracy arm and Precision again demonstrated its effectiveness as the ammunition end of the supreme small-bore combination of victory.

In the N. R. A. Individual Match for the United States Trophy, first and second places were captured by shooters using this combination. Paul Wright of Silver City, New Mexico, came through with an excellent 395 x 400 to carry off the trophy while Sergeant B. F. Leonard, Instructor of rifle practice at New Mexico Military Institute, won second honors with a fine 391 x 400. Sergt. Leonard, shooting with but one hand because of an injury due to an accident which cost him his left, showed by his remarkable shooting that he can put them right in there with the best of them.

The same pair, Paul Wright and Sergt. Leonard, carried off first honors in the Far Southwest Two-Man Team Match, over the Dewar course. Their score totaled 770 x 800. Joe W. Massey of Roswell, N. M. and Robert Junk, also of Roswell came in second and the team of Elliott and Taylor finished third. All three teams used Winchester Precision in the Model 52.

In the Hercules Two-Man Team Match, fired over 100 and 200 yard ranges with telescope sights, Sergt. Leonard and his partner, Paul Wright, captured second place with another fine piece of shooting. The winning team shooters in this match also used the Model 52.

The Caswell team match was won by the Texas team, equipped with Winchester Model 52 rifles. The New Mexico team, shooting through a cold, driving rain that made conditions almost impossible, turned in a highly creditable second score, every member shooting Winchester Model 52 and Precision.

Once again the great Winchester Small-Bore Combination — Model 52 and Precision — established its position for supreme accuracy and shooting results.

WINCHESTER REPEATING ARMS COMPANY

NEW HAVEN, CONN., U. S. A.

The

AMERICAN RIFLEMAN

VOL. 80, No. 11

NOVEMBER, 1932

WHY?

The American Rifleman is the official organ of the National Rifle Association of America, created and maintained to accomplish the following objectives:

- 1. Assistance to legislators in drafting laws discouraging the use of firearms for criminal purposes.
- 2. Prevention of the passage of legislation unnecessarily restricting the use of firearms by honest citizens.
- 3. Teaching the safe handling of firearms to both adults and young men and women, and providing safe ranges, interesting competitions and attractive trophies, to reduce haphazard shooting.
- 4. Encouraging adequate police instruction with firearms and providing instruction courses and instructors.

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- 5. Developing higher standards of marksmanship in the uniformed Services constituting our first and second lines of defense.
- Assisting commercial and government arms and ammunition factories in the development of improved guns and ammunition.
- 7. Providing shooters in small communities with the same opportunity to obtain the latest and best in shooting equipment as is enjoyed by the residents of the largest cities.
- 8. Providing new shooters with unbiased information which will avoid their wasting money on equipment not suited to their needs or purse.
- Standing firmly behind all proper efforts to maintain an adequate but non-militaristic national defense program for the United States.
- 10. Maintaining proper permanent records of achievement in rifle and pistol shooting similar to those maintained by the respective National organizations interested in other competitive sports.

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E D I T O R I A L

The Rifle Game—Ten Years from Now

THEY were as fine looking a pair of youngsters as you would care to see—clean in appearance, well set up, perhaps a little more quiet in their demeanor than the average high-school students on their way home from school. They might have been high-school track men or basketball players just finished with an after-school practice session. But their conversation was all about "groups" of shots properly called; about the inability of some teammate to make up his mind to take the necessary windage. Rifle shooters they were—and keen ones; enthusiastic about it, with a great deal of lore of the range already tucked away in their heads, and the willingness and ability to learn much more.

Just a few weeks ago another group of enthusiastic shots had piled into the street car at the same corner. Their language was not quite as technical and their shooting ability apparently not quite so high. They were talking of Pro-Marksman and Junior Marksman qualifications. But they had the same interest and the same enthusiasm. These were girls—future voters the same as the boys, future mothers of the America of tomorrow.

At street corners of more than seven hundred communities throughout the country similar groups of boys and girls are climbing aboard street cars and busses every night in the week. The future of rifle shooting would be safe in their hands if there were enough of them. But there are seven thousand communities large enough to maintain such groups! There are two thousand civilian rifle clubs and thousands of American Legion Posts capable of supervising a Junior shooting program in high school, Y. M. C. A., Boy Scout, Boys' Club and Junior fraternal groups. The adult rifleman who "hasn't the time" to take an interest in helping these youngsters to learn to handle a gun safely—to learn the thrill that lies in a close-fought match with the rifled tube, is passing up of his own volition a great opportunity for inspiration, deep-seated pleasure and worth-while effort for the future of the shooting game in America.

Nearly every normal American youngster is interested in shooting. The chance to shoot and competent leadership are all that are required. There are thousands of communities in which both are lying dormant at this time. The opportunity is ripe. The time to strike is now, with the indoor season just getting under way. The result of years of experience is avail-

able at National Rifle Association Headquarters to any man who is interested enough to ask for it and to start the ball rolling in his community.

Will the adult riflemen of America rise to their opportunity this winter? The answer lies with each individual rifle shooter, rifle club secretary, American Legion post adjutant. The responsibility is yours. The opportunity to point to some future international shot and say, "I started him on the way," is open to you. Seize it!

How Will They Vote?

THERE will be more new faces in Congress, in State Legislatures, in elective positions, from governor to sheriff, throughout the land this winter than has been true in a long time. Most of these men will be trying to do what they think the voters want done. If antifirearms legislation is passed, if sheriffs refuse pistol permits to honest citizens, if appropriations for promotion of civilian rifle practice are cut, it will be because the men who are elected on November 8th believe that is what the people "back home" want done. If the opposite is true it will be because the elected officials, dependent upon votes for their jobs, think that the voters do not want antifirearms legislation, do want gun permits issued to honest citizens, do want civilian rifle practice assisted by Congress.

The time to ask your candidates what they will do is before they are elected, and to cast your vote accordingly. The time to tell your office holders what you want is just as soon as they are elected. Then keep after them interminably until they vote the way you want them to. Office seekers and office holders have never been more anxious to "feel the pulse" of the voter than they are right now. It is up to the sportsmen of America to make their wants known in no unmistakable terms, and to prove to candidates and office holders alike that there are more red-blooded, clear-thinking Americans than there are weakkneed, muddle-headed reformers, even though the latter type may occasionally command more space in the public press. If there is elected for sheriff, governor, Representative, Senator or President a man who is opposed to the interests of the sportsmen, and if he is elected with the aid of the votes of those sportsmen, these latter surely have no one to blame for the situation but themselves.

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Now is the time to make your stand clear to those who want you to vote for them—and pay their salaries for a term in office.

AMERICAN RIFLEMAN

NOVEMBER, 1932

"Dope"

By LIEUT. COMDR. W. J. KOSSLER

Captain, U. S. Coast Guard Rifle Team 1929-1932

(The writer makes no pretense of being any sort of authority on this shooting game. He has had, however, a unique opportunity to study a large number of expert riflemen over a period of three years, and to note where a great many shots went under a wide range of conditions. The data collected and the observations made are only applicable to the regulation Springfield military rifle using modern ammunition (M-1 or similar) of about 2,650 to 2,700 f.-s. muzzle velocity, with boat-tail bullet. It is hoped that the conclusions here drawn may clarify some controversial points and be of some value to those individual shooters who are fond of the game but are perhaps somewhat confused by the mass of contradictory opinions held by numerous devotees as to why bullets don't go where they should.)

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That is a very familiar question, and frequently asked by the rifle bug behind the firing line at Camp Perry or elsewhere when trying to decide what elevation and windage to use to get that first shot in. Jim Jones comes off the line and reports he is up a minute and a half, while Tom Brown swears he's down a minute. To add to the confusion, one has used 1/2 point of wind, while the other insists that it is blowing a full point. The lone individual is rather up against it. As a rule he makes a wild guess and says his prayers until the target comes up-assuming that it actually went down after that first shot. Sometimes he's lucky, but more often not; and he can then have the pleasure of beefing about the bum steer that some well-meaning but misguided chap gave him. He can read books on this fascinating angle of the shooting game. but after all that really doesn't help him much. For he will find one expert authority telling him, on the one hand, to come up for mirage, for example, while another advises him to come down. He has not time, money or opportunity to test things out for himself, so adopts some theory that appeals to him, and goes ahead. Sometimes he hits, which strengthens whatever pet hallucination he is under the spell of. When he misses it is one of those unaccountable things in the game that make for heated argument and discussion long after the last target

The writer had the great advantage of knowing nothing whatever about it all when he first became active in the shooting game, and was therefore not burdened with any opinions, good or otherwise. He listened to a great many theories, many of them very plausible; but after some observation, it became apparent that a lot of those theories didn't always work, which was invariably put down as just one of those inexplicable things about shooting. So he determined to find out for himself just

what it was all about. Here are the results, with the hope that they do not make confusion worse confounded.

If the gun always grouped the same; if each ten rounds of ammunition averaged the same; if external conditions were always identical and the man behind the gun always got his shots off the same, then every group center would always be in the same place. Let us consider the longest range first, and list the things that cause or have been credited with causing those shots to go in a different place than they did the day before.

For elevation changes, these are:

- 1. Change in the gun;
- Variation in any ten rounds of ammunition from that in preceding strings;
- 3. Position (manner of holding the gun);
- 4. Sight alignment;
- 5. Temperature of air and ammunition;
- 6. Mirage;
- 7. Humidity;
- 8. Barometric pressure;
- 9. Light on the sights;
- 10. Kind of light on the range or target;
- 11. Wind (head or tail);
- 12. Wind (up or down currents).

It looks like a rather formidable array, and one would be tempted to conclude that any guess would be as good as an attempt to dope it out. However, a little experiment and a little calculation proved that many of these goblins, once they were closely examined, were merely shadows, even for long ranges. Let us cut off a few heads.

There is one real effect at long range that is constant and that can be accurately determined—temperature. The problem was to find its exact amount alone. This was done by firing

several hundred rounds on a table rest with telescopic sights at wide temperature ranges, plotting group centers of elevation against temperature, and drawing a straight line through the mean positions of the points so determined. While the various 10-shot group centers varied considerable from the normal line, the average temperature effect was unmistakable and was found to be 10 degrees to a minute at 1,000 yards, and 30 degrees to a minute at 600 yards. It is, of course, negligible at the short ranges. That is, a rise of 10 degrees in temperature of air and ammunition raises the center of impact of a group of shots one minute or 10 inches at 1,000 yards. Ballistic calculations for the boat-tail 172-grain bullet (M-1) showed about 1/2 minute for a 10-degree change in powder temperature, and about 1/2 minute for a change in density of air corresponding to 10 degrees temperature change. This checked almost perfectly with actual experiment.

Now it can easily be shown that it would take a change of 1 inch in the barometer to change the density of the air sufficient to be equivalent to a 10-degree temperature change. As the barometer in one place will not vary more than 1/3 inch, it is obvious that we can completely forget about the barometer, even at 1000 yards. A similar calculation for humidity proves that this ghost is even less worth bothering about.

Now let us look at head and tail winds. Actual experiment with machine gun, which checks very closely with ballistic calculation, shows that it requires a 20-mile head wind to lower the point of impact 5 inches or 1/2 minute at 1.000 yards, and a 60-mile wind for 1/2 minute or 3 inches at 600 yards. How often do

you get such a wind?

We have left, then, as undetermined factors affecting elevation: the gun, ammunition, position, sight alignment, light, vertical wind currents. There are simply no means of allowing for the first four, except to reduce them to a minimum by extreme care in the adjustment and handling of the gun, and the development of correct habits in position and sight alignment. (By sight alignment I mean the position of the front sight in the peep. If the shooter gets careless about this his whole group may be displaced and yet he will swear they were held good. Tyros are exceptionally prone to change their sight alignment from one string to another while otherwise holding good.) There is a certain irreducible error due to these four causes that cannot be-calculated. The average variation due to this error can be found for each individual, but there is no means of predicting whether any string will be up or down.

wind currents. Light has usually been the goat for most otherwise unexplainable variations of elevation and zeros. In my opinion light has often been blamed for a lot of things of which it was entirely innocent, the reasons for which conclusion will shortly be given. Except at Camp Perry, a great many 1,000-yard ranges in the East are fired over gullies or against the side of a hill. There are bound to be up and down currents of air in such cases. It can easily be seen that even a slight up current would raise the point of impact 10 inches at 1,000 yards. The 1,000-yard range used for determining the temperature effect with a telescope gun on a table rest was against the side of a mountain. On windy days the group size would sometimes be twice that of calm days, especially if the wind were gusty; and frequently on such days the elevation would be considerably (as much as 15 inches) off normal for that temperature. Nothing but up or down air currents could possibly cause such a wide variation for shots fired under such conditions. Even on a flat range there are bound to be slight up or down currents at times. However slight, these have a relatively great effect at long ranges, and very often, I believe, cause the grief that is unjustly laid to light.

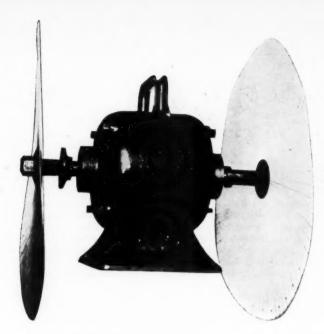
The effect of light on a rifleman using iron sights has always been the most controversial of subjects, and one on which few shooters agree. This is entirely natural, as it is very difficult to separate the effect of light from other factors; and furthermore the effect of light is not necessarily the same for any two men.

One effect of light could be tested: whether or not light on a well-blackened sight affects the point of aim. Most shooters are familiar with the old rule about moving into the sun on the theory that the sunlight produces a glint on the front sight or a shadow in the rear, or something, and causes the shooter to hold away from the sun, which must be compensated for. Now I may be starting something, but I feel justified in flatly denying that rule. By long and careful observation and special experiments, it was demonstrated to the satisfaction of all those participating that the effect of the sun on well-blackened sights is exactly zero. A .22 Springfield rifle was fired at 60 feet by five different men, on a table rest. Each man fired five shots with the sun on the sights, five with the sights shaded, and five each with the targets shaded and with it bright. No measurable displacement of group center could be detected. This may not sound very convincing; but wait. Seven of the best rapid-fire shots of the team were selected. and each fired a string at 200 rapid with the sun at 3 o'clock, early in the morning.

There now remains light and vertical The same group fired a second string the evening of the same day, when the sun was at 8 o'clock. The wind was practically the same for both strings-a light 1/4 left. The wind gauges of the guns were set the same for the evening string as for the morning one. Each shot of both strings was carefully plotted and the group center determined. Here is where the second strings went in comparison with the first: Three men put their afternoon group centers in exactly the same place as the morning group centers. Two afternoon group centers were displaced 1/4 point right from the morning positions, and two were displaced 1/4 point left. The mean displacement for the seven men was exactly zero. Out of the fourteen strings fired, by the way, six possibles were made. In addition, while not such definite proof but even more convincing to me. I have been unable to detect the slightest relation between the position of the sun and displacement of groups for any man that has ever come under my observation, for any range. Groups do vary in their position on the target from string to string and day to day, but no constant relation to the position of the sun could ever be found in either windage or elevation. Needless to say, no man on the Coast Guard team ever takes the sun into consideration in figuring his zero, nor has anyone ever lost any points by not doing so.

There is now left, then, as a factor controlling the position of group centers, the light on the target. In order to determine exactly how much if any effect the appearance of the target has on the point of aim, the various kinds of light were defined for every man, as bright clear (no mirage or light mirage); dull (overcast but clearly defined bullseye); dark (hazy, fog, etc.); shaded target (sun behind target), and heavy mirage. As has been said, the exact determination of the effect of light on the point of aim is difficult, due to the other indeterminate variations that are always present. Looking over a mass of record sheets soon becomes a hopeless and confusing task. In order to get a convenient picture for analysis of the performance of each man under different conditions, the elevation he should have used each time he fired at 600 and 1,000 yards was plotted on cross-section paper against temperature, with a symbol representing light conditions, as previously defined. These data sheets were kept for each man on the team. After sufficient plots were obtained, a straight line with a slope of 10 degrees to a minute for 1,000 yards, and 30 degrees to a minute for 600 yards, was drawn through the mean position of all plotted elevations for clear bright days. Any point on this line, then, was con-

(Continued on page 29)



LEWIS CHRONOGRAPH BUILT BY MERLE A. GILL, USING BLACK & DECKER BENCH GRINDER. PHOTO SENCH GRINDER. PHOTO COURTESY OF MR. GILL

The Lewis Chronograph

By THOMAS N. LEWIS and C. L. QUICK

IFLE and pistol shooters, especially those who load their own ammunition, have often wished that they had some means of accurately measuring muzzle velocities. But the type of chronograph generally used in Government and commercial ballistic laboratories is far too costly to be considered by the average individual, and too complicated and delicate in construction to be built by any but the most skilled mechanic or instrument maker, possessed of an unusual practical knowledge of electricity and a mass of technical data. The instrument to be described has forms the basis for performing the calcula-

been developed to fill the above need, and can be built at a cost not to exceed \$10 by anyone possessed of a small amount of mechanical ability and the tools with which to do the work.

This chronograph in its essentials consists of two cardboard discs fastened to the ends of a revolving shaft so that the discs revolve with the shaft. The test shot is fired through both revolving discs, near their outer edges, the line of flight of the bullet being parallel to the revolving shaft.

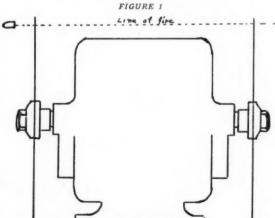
The calculation of velocity of the bul- tions for velocity of bullet. Accuracy of let is based upon the difference in the positions of the bullet holes in the two discs. While the bullet is passing from the first disc to the second one, the discs are revolving at high speed; therefore the two bullet holes will not be exactly opposite each other. The lower the bullet velocity, the greater the distance between bullet holes, and vice versa. Lines are drawn from the center of the disc through the two bullet hole positions, and the angle between the lines measured. This angle

results obtained is dependent upon the revolving discs being attached to the shaft exactly the correct distance apart; upon the speed of the revolving shaft being correct and constant, and upon the line of flight of the bullet through the discs being parallel with the axis of the shaft. It is also dependent upon being able to place the discs one upon the other, after they have been removed from the shaft, in such a way that they will be in the same relative angular position to each other that they occupied when on the shaft.

Mr. Merle A. Gill, the Kansas City forensic bal-

listician, who

has just completed one of these instruments, has this to say concerning it: "The chronograph I am using, which was constructed from material 'on hand,' consists mainly of a Black & Decker bench grinder having a speed of 3,600 r. p. m. I had the motor overhauled and new bearings put in to assure a perfect-running machine. My opinion is that the chronograph described herein will check velocities very close to factory standards if the operator will em-



*This type of chronograph was used by the late Dr. F. W. Mann in his experiments.—ED.

NOVEMBER, 1932

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ploy the same technique as he does in using other fine instruments. It works to a 'T'.

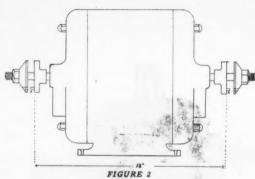
The heart of this device is the electric motor that drives the revolving discs. It is desirable that a double-shaft motor be employed: that is, one in which the shaft extends out at both ends, in order that the cardboard discs can be carried at opposite ends of the machine, for the sake of rigidness and smooth running. The motor should preferably be a synchronous one having a speed of 3,600 r. p. m..

although a discarded vacuum sweeper, bench grinder, or electric-fan motor will serve the purpose if large enough to pull the load at the desired speed. It is understood that a synchronous motor is one that exactly "keeps in step" with the cycles of the alternating electric current: and since the alternating current as generally put out by power companies is right on the dot as regards number of cycles per second, with only about 1/2 cycle variation in 12 hours, it follows that the speed of a synchronous motor is very uniform.

Having obtained a motor, determine its speed. An ordinary revolution counter used in conjunction with a watch will serve for this, and can be had for a small price. or one could no doubt be borrowed from a mechanic or electrician. If your motor be of other than synchronous type, it would be well before taking its speed to attach temporarily to the shafts two discs of the size and type you will use in your regular testing work, as these discs impose a drag on the motor which may affect its speed. All calculations and the chart given herewith are based upon a motor speed of 3,600 r. p. m., and a distance between discs of 12 inches. If the speed of your motor

is found to be below 3,600 r. p. m., this can be compensated for by allowing a greater distance between discs; or if the motor speed should be above 3,600, this can be taken care of by lessening the distance between discs. The correct disc distance for any motor speed can be determined by the following simple rule: The basic motor speed (3,600) multiplied by the basic distance between discs (12 inches) equals your motor speedmultiplied by your disc distance; or, your disc distance = $3,600 \times 12 \div your$ motor speed.

Having performed this calculation and obtained your correct disc distance, you may find that your motor shaft is not long enough, and will require an extension shaft to be



fitted at one or both ends. This should present no problem to a mechanically-minded person. The discs are held on the shaft between collars, exactly the same as an emery wheel or circular saw is held: except that each inner collar should carry on its face a projecting stud to hold the discs in a definite angular relationship to each other. The inner collars should be attached solidly to the shaft so that they cannot move, and the two studs should be exactly in line with each other. All this is clearly shown in Fig. 2.

There are various ways in which the angular difference in position of the two shot holes can be measured. One of the quickest and most convenient methods is by means of a measuring board and protractor as shown in Fig. 3. The measuring board should for convenience be somewhat larger than the discs used. One surface should be reasonably true and smooth, and should have attached at or near its center a projecting stud of the same diameter as the hole in the center of the cardboard disc. This stud should have a hole down through its center. There should be a second stud to correspond with the studs a sheet of cross-section paper ruled off, both on the inner collars of the motor shaft. horizontally and vertically, in inches and

These studs can either be attached directly to the measuring board, or they can be fastened to a circular plate of metal, and this plate let into the board flush and fastened with countersunk screws. With this arrangement two discs can be placed on the board, one on top of the other, and held in the same relative angular position that they occupied on the motor shaft when the test shot was fired. The position of the shot hole in the upper disc can then be transferred to the lower one by pencil, and the

upper disc removed. Measuring the angle between the two bullet holes is then a simple matter with the protractor shown in Fig. 3. This protractor has a projecting boss at the hinge joint, which fits into the hollow stud in the center of the measuring board, as clearly shown in the figure. The remaining details of the protractor are obvious. The curved limb of the protractor should of course be accurately laid off in degrees of angle. Or one can obtain 14" cardboard discs with degrees laid out around the edge (Fig. 5), and by using one of these discs on the chronograph, the angle between shot holes can be read off right from the disc, making the use of the protractor unnecessary. Another method would be to use plain cardboard discs, draw radial lines from the center through the shot holes, and measure the angle with an ordinary celluloid protractor.

Having equipped ourselves to accurately measure the angular displacement between shot holes in the two discs, we must construct a table or graph with which to convert angles of displacement to foot-seconds velocity of bullet. For this purpose obtain

> tenths of an inch (Fig. 4). This sheet should not be less than 21 inches long and 16 inches wide. Beginning at the lower left-hand corner, number the first vertical heavy, or 1inch, line 20, the second one 21, and so on up to 41, marking the figures in ink near the lower edge of the sheet. Similarly number the heavy horizontal lines from 500 at the bottom up to 1,100, progressing by hundreds, and marking the figures in ink at the left-hand edge of the paper. This is our lowvelocity chart, and is clearly shown in Fig. 4.

We now come to our

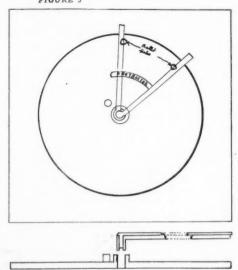


FIGURE 3

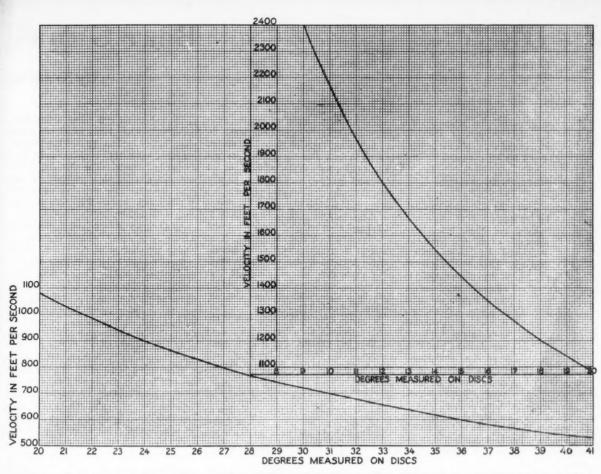


FIGURE 4. THIS CHART CAN BE USED AS HERE GIVEN, ALTHOUGH A LARGER ONE WILL BE MORE CONVENIENT. THE CURVE CAN BE CONTINUED UP FOR HIGHER VELOCITIES IF DESIRED

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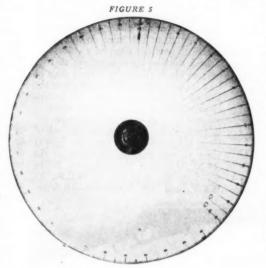
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have marked 800, and the vertical line marked 29. From this point, ink in horizontal line 800 to the right as far as the edge of the sheet. Below this inked-in line mark the numbers of the vertical lines above, giving the first line, at the very left, the number 8, the next one the number 9, and so on up to No. 20 at the right-hand edge of the sheet. In the same way number the horizontal lines, calling the inked-in line No. 1,100, the next above it 1,200, and so on up to No. 2.400, as shown, and preferably still higher. In both of these charts the vertical row of figures represents velocities in feet per second, while the horizontal row represents degrees of angle between shot holes on the two discs.

Now, having assigned proper numbers to the horizontal and

the same sheet of squared paper. The lower are ready to plot the curves. This is located at the intersections of certain of left-hand corner of this chart is at the done by establishing on the chart a series the vertical and horizontal lines. On the

high-velocity chart, which is laid out on vertical lines of both our charts, we through these points. These points are intersection of the horizontal line that we of points, and drawing a smooth curve low-velocity chart, for example, one of



these points is located where the vertical line numbered 40 (a degree of angle line) crosses horizontal line No. 540 (a foot-second velocity line). There is no horizontal line numbered 540, but this point can be located by the aid of the unnumbered intermediate lines. Other points on the low-velocity chart are found where:

Degree Line		Velocity Line
No.	Crosses	No.
39	6.6	556
38	66	567
37	64	585
36	4.4	600
35	44	617
34	64	635
3.3	4.6	657
33 32	6.6	678

Mark these points on the chart with an ink dot, and then draw a smooth curve through them, using a flexible ruler, wooden or celluloid batten, or any other suitable guide.

(Continued on page 31)

a bear with his overcoat off? His compact, powerful frame is laced together with the most gorgeous set of silvery muscles you could possibly imagine. Broad bands of pure cord and sinew, attached to a sturdy structure of heavy bones, account for the tremendous feats of strength of which bruin is capable—and for his enormous vitality,

WINCHESTER MODEL 86

which to the rifleman means bullet resistance.

Even the black bear, most peaceable of all the family of *Ursus*, now and then goes on the rampage. His muscular prowess

is then demonstrated in alarming ways, for he can pulverize the spine of a hog, a sheep, or a deer with a single smash of his big paw. Bruin can slap the hardwood head of a barrel of salt pork and cave it in as easily as you would crush a straw hat, although it takes a husky wallop with a heavy axe

to duplicate the feat. He will rip open a log wangan camp as nonchalantly as you would open a box of your favorite choco-

Depredations by black bears in northern Maine cause heavy annual losses to the lumbermen, the bears emerging from their hibernation period ravenously hungry each spring. The loggers on their part now and then retaliate against bruin in ways much more effective than humane. Ed LaCroix. a millionaire timber operator, once told me of a method his men employed in guarding the woods storehouses against the ravages of bears.

"The meanes' treeck—the bear weel hate you for life!" he declared, and went on to explain that a bear always attacked the most vulnerable points of a storage camp—the windows and the door.

Discarded crosscut saws, five feet long, are placed across both doors and windows and spiked solidly in that position, with the wicked teeth facing outward. Six or eight inches apart, they make an almost solid wall of jagged, cutting steel. A bear's method of effecting entrance into

ID you ever happen to see a camp is to smash the door or a bear with his overcoat window with a powerful blow of off? His compact, power-his paw.

"He weel leave part of hees arm on those saw—an' he weel not com' back," said my informant. I agreed with him.

There are several reasons why only the most powerful of hunting arms should be employed against the bear. In the first place, there seems to be a mental hazard in bear hunting which does not exist, in the same degree at least, in the pursuit of deer and similar game. Even a comparatively cool hunter, one who has pretty well gained control of his nerves under ordinary conditions, is very likely to "blow up" when suddenly confronted with a big, husky bear at close range. If he manages to steady himself down enough, in the short space of time usually available, to actually get a bullet into that bear-anywhere between his nose and his tail-he is doing absolutely all that can be expected of him.

A carefully placed shot, low behind the foreleg, through the base of the ear, or squarely between the eyes, will of course put even a big bear down for keeps, even with a rifle of very moderate power. A few years ago the writer described the killing of a good-sized black bear with a Stevens Offhand Model pistol, using the ordinary .22 short cartridge. Needless to state, that bear was in a trap, and was shot through the ear drum at close range by a man who had killed dozens of these animals

Under normal hunting conditions, your shot at a bear will be a hastily aimed shot at a momentarily motionless target at distances which have to be guessed—or it will be a snapshot at a black form bouncing off through the timber at a rate of speed which would make a deer thoroughly ashamed of itself. In either case, unless you have done a whole lot of hunting you are not going to be able to pick your spot and place your bullet precisely on it, as you must do to kill the bear with anything short of a .405.

Back in those "good old days" that we hear so much about, the correct dose of lead for bear hunting was a slug about the size of a pullet's egg, backed by enough black powder to sling it through anything wearing fur that happened to blunder out in front of it. Bear hunters who valued their hides (their own and the bear's) stuck to such capable playthings as the .45-70, .45-90, and .50-110 Express. Prime favorites, too, were the .33 W.C.F., .35 W.C.F., and .405 Winchester—all lever-

Bear Guns-

By KENNETH

action arms, you will note. Using long, heavy bullets, the loads mentioned retain their killing wallop up to the longest ranges at which they are likely to be used in woods hunting. The .33, .35, .45-70 and .405 retained their popularity longer than the other two cartridges mentioned in this group, because they were more effective at long range.

As a matter of cold fact, thousands of hunters still swear by and use the '86 Model Winchester in the .33 and .45-70 calibers for the heaviest American game, and do not complain about results. The .405, too, still has plenty of admirers, but in the writer's opinion it is a bit too much gun for anything except Alaskan bear or African lion. It is unnecessarily powerful for black bear, and to use it on deer is ridiculous. A small deer hit in the shoulder with a .405 is a sight to make angels weep.

When smokeless powder became popular, and hunters commenced to yearn for arms having longer range and higher velocity, the .30-40 and .30-'06 came into the limelight. Bear guns par excellence, it soon became apparent that they would make history in the game fields.

Perhaps you, reader, remember the advertisement that the Savage Arms Company brought out many years ago, quoting a famous hunter and guide as saying that his .303 would shoot entirely through a grizzly bear—endwise. Well, it won't do it, but either the .30-40 or the .30-'06 will—sometimes.

With these two very excellent cartridges can be classed the 6.5-mm. Mannlicher and the .270 W.C.F. Long, heavy bullets of high velocity, giving the finest kind of accuracy at all hunting ranges, and capable of delivering a deadly punch up to the practical limit of distance at which they will be used, no hunter worthy of the name need fear to attack a bear with any one of these.

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With any gun, no matter how powerful, common sense must be used. Should you be unlucky enough to round a bench, high up on some Alaskan mountainside, and find your path blocked by a grizzly weighing half a ton or so, it might well be the part of discretion to hold your fire. Firing

blindly in such circumstances has put more than one hunter "on the spot" in a highly disastrous manner. In fact, most of the fatalities so far recorded in connection with bear hunting were caused by some idiot's opening fire on an ani-



Past and Present

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mal at close range, without remaining cool enough to place his shots where they would kill instantly.

A wounded bear will not always charge, but it is never safe to depend upon his not doing so; and if he does, and manages to get to close quarters with the hunter, it is just too bad! One pat with his enormous armed paw and you are going to wish you had stuck to less exciting forms of sport.

Coolness in an emergency is worth many extra foot-pounds of bullet energy. A case in point is that of "Chub" Foster, famous Aroostook County guide, who in the fall of 1931 killed a very large black bear while guiding two gentlemen from

Jamaica, Long Island.

"Chub" and Sam Adams had entered a cedar swamp on the trail of a big buck which they had jumped earlier in the forenoon, and they stopped on a little rise, in the center of which was the stub of an enormous "punkin pine," still standing, although it had been dead for years. Adams, a young man with no hunting experience, was standing about eight feet from this tree, with his back to it, looking for the buck. "Chub" was about a dozen feet away, also intent on the search.

Adams was suddenly petrified at the sound of snapping teeth and a bawling roar, and spun around just in time to see an enormous bear coming at him, as he afterwards expressed it, "right out of the ground, less than ten feet away." He attempted to jump backwards, his heels caught on a fallen log, and he went down, directly in the path of the onrushing brute. "I'll never get over that sight—if I live to be a thousand," he said later.

But Foster, luckily for his companion, kept his head. With the roar of the bear and Adams's shout of surprise, "Chub" swung completely around, his .32 Remington automatic coming to his shoulder in a flash. He fired twice, and the bear fell with its great head resting on Adams's legs. Those two bullets struck within an inch of each other, almost as exactly between the bear's eyes as if they had been measured for it. "Chub's" rifle was equipped with a flat-topped rear sight having an ivory pyramid, and an ivory-bead front sight, a mighty fine set of snapshooting sights.

Now, regardless of appearances, that bear was not charging out of pure malice. We found that he had dug himself a cozy den under the roots of the big pine, had filled it with leaves, and, snugly ensconsced therein, had started to hibernate. But he was not asleep when Adams and "Chub" invaded his sector, and upon finding them so close, he did the only thing possible under the circumstances, and came scrambling out of his den, thereby scaring Sam out of seven years' growth, as already mentioned.

The writer has shot six black bear at different times, and has studied this species for years at close range. In my opinion it is very rare for a black bear to take the offensive, even when badly hurt. Which is not saying that it never happens!

On one occasion a very large black bear, shot through the lungs with a Colt's .45 Automatic, ran past me within ten feet and collapsed almost a quarter of a mile away. He certainly had every opportunity to attack, and plenty of strength left to mop up a man in short order—yet he ran.

Rifles of the .30-30, .32 Special, and .303 class are suitable for black bear, in the hands of cool, capable marksmen, and they have accounted for game of this sort time and time again. In the new loads they are powerful enough for this purpose, but not so effective as the loads previously referred to. Bruin is one of our very finest game animals, a gentleman who deserves all the consideration we can give him, and there is certainly no excuse for wounding him with bullets from entirely inadequate firearms.

In years when the ridges are covered with beechnuts, he waxes exceedingly fat, and a small bullet hole will close up very rapidy and without leaving blood sign enough to trail him. It is said on fairly reliable authority that a wounded bear will sometimes stuff dirt and leaves into a bullet hole to prevent bleeding. I am not in a position to verify this from my own knowledge, but in view of my own personal experiences with bears, it does not by any means seem unlikely. A bear has plenty of brains, never doubt it. And he uses them!

Two corking good bear guns which have thus far been left out of this discussion are the .401 Winchester Self-Loader and the .35 Remington Automatic. They both have ample power for black bear, coupled with nice handling qualities and speed of fire, the last being desirable only if one knows how to utilize it. Even at closest range, a burst of frantic firing never seems to accomplish much. One or two well-aimed shots in such a tight place are worth more than any wild barrage ever turned loose. But in capable hands, such as

"Chub" Foster's, the heavy automatic is about as deadly a weapon as can well be imagined, and is grand health insurance in close quarters with a big bear who has had his shaggy hide punctured and is sore about it.

Dr. Chase, of Cordova, Alaska, was one of the first men to try out the .401 on big bear, and his experiences with it were highly illuminating to everyone but the

WINCHESTER MODEL 54

bears. The paper energy of the load is not great, only about 1,300 foot-pounds at 100 yards, although it is 2,141 at the muzzle, using the 200-grain bullet. At 300 yards it has fallen off to a

mere 560, or about the same as the newer .25-20 loads at point-blank range. The .401 will never take any prizes as a long-range game cartridge, which does not alter the fact that it will just naturally reduce a big bear to his component parts at close range. Ask Doc Chase.

Ex-Chief Arthur S. Field, of the Maine State Police, has been in my hunting party for the past several years. The Chief has an old Marlin .30-30 with an octagon barrel, a nice pistol grip, and shotgun buttplate. It was his father's pet rifle, and Arthur has hung onto it through thick and thin-and some of it has been very thin indeed! He can drive nails, behead partridges, or knock the eye out of a standing buck with that rifle. I've seen him do all of these things-and more, at reasonable ranges of course. Three years ago we went to Caucomgomac Lake in early November, "to see what we could The first thing Arthur saw was a black bear which afterwards proved to weigh nearly 500 pounds.

We had separated near the top of Caucomgomac Mountain, and while I went pussyfooting around on the west side, Arthur struck up across the granite ledges and entered a little ravine, lined with stunted spruces, right on the roof of the mountain. A quarter of a mile distant, I heard his rifle—just one shot.

(Continued on page 31)





THE SUB-MACHINE REST IN USE

Home-Testing Handgun Ammunition

By MARLIN R. KEMMERER

COMETIME ago the writer realized the need of a practical means for testing handgun ammunition. Experimenting with different bullets, powders, and tools brings doubt as to which combination is giving the best results, and how much the best. Every handgun shooter and reloading enthusiast experiences this to some extent.

Rifle shooters, even if they do not have a machine rest, can use muzzle-and-elbow rest and obtain results almost equal to the possibilities of the arm and ammunition. Handgun shooters are handicapped in this respect due to the short sight radius and lack of facilities for steady holding.

Living in a community where there is no hope of conveniently maintaining a concrete base for a machine rest is a drawback. But boys would playfully batter the studs with bricks, or some thoughtless galoot would test penetration of a highpower rifle in the base. Then, it was desired to be able to test ammunition indoors, where conditions are constant, and also out in the wind. It is true that wind affects handgun ammunition only slightly at the 50-yard range, but from there on things begin to happen. Another thing desired was a means of checking exactly the amount of bullet drop at the various ranges without using an intermediate target as a screen.

After considering the above points it appeared that what was required was not a machine rest at all, but a "sub"-machine rest; and that a portable one. So I went to work. An old Stevens Favorite rifle with shot-out barrel, a set of Lyman sights for same consisting of No. 17 front and so as not to spring the revolver frame.

mounts and blocks, and some odds and ends of material were dragged out from their hiding places, and a few hours of labor placed a Colt Officers' Model in the

position shown in Figure 2.

The work done was as follows: First, the front and rear sights were removed from the revolver, care being taken to replace the front-sight locking screw. The recoil will partly close the hole if the screw is not in place. Forearm and mechanism were then removed from the rifle. The revolver was mounted underneath the rifle barrel, being attached at two points, as shown. The front mount was made by fitting the top half of the revolver barrel into an oak block so that it seated fully. The barrel was held imbedded in the wood by two 3/16" bolts, one on each side, and a piece of 1/8" strap iron. The entire mount was held by these same bolts to another piece of strap iron which was first bolted to the rifle barrel. The rear mount consists of a dovetail bar held in the rear sight slot. It is 1/8" thick, and long enough to take a hole for a 3/16" bolt at each end. The holes were placed as near as possible to the revolver frame, the nuts being filed down on one side. A block of wood serves as a bedding between the revolver frame and the rifle barrel. A strip of iron fits over the top of the rifle barrel, and through the ends of this the 3/16" bolts pass, thus clamping the revolver frame to the rifle barrel.

The revolver is adjusted for elevation by shimming at the forward mount, making allowance for this in the rear mount

No. 103 rear, a Fecker 10X scope with Securing correct windage was done by simply taking care in drilling the holes. To prevent recoil from moving the revolver rearward, the latter was brought back until the front sight lug rested against the bedding of the forward mount. As an extra precaution a stop was placed against the back of the rear mount bedding. In making this rig, holes were drilled clear through the rifle barrel, although this was not necessary as holes could be drilled only part way, and tapped, and screws used instead of bolts. It will be observed that the revolver was mounted with just enough space behind and above the hammer to permit safe cocking, and to allow the grip to be reached without cutting off the rifle stock. The revolver was mounted as close to the rifle barrel as possible to secure the maximum rigidity.

> When all of the above work had been accomplished, and the iron sights and scope blocks attached to the rifle barrel, we were ready for a trial. Firing was done at 50 yards, resting the middle of the revolver barrel on a heavily padded support. A sandbag of small size might have been used to advantage had one been available. Scope sight was used, and the 100-yard small-bore target. This target gives easy sighting at 50 yards, and the "V" ring shows very plainly. Results for the first few strings were very erratic. Carefully tightening the bolts slightly several times caused the groups to center. From then on results were surprising. The piece was found to hold as easily as a rifle.

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But like most shooting bugs, the writer is never satisfied. Thinking that the ut-(Continued on page 30)



THE PROUDEST BIRD THAT FLIES. PHOTO FROM MC-ILHENNY'S, "THE WILD TURKEY AND ITS HUNTING"

Hunting Wild Turkeys

By HENRY E. DAVIS

THIS is to be largely a personal story, as it is but a few leaves taken at random from the book of experience of forty years in the hunting of the game bird supreme, the genuine Eastern wild turkey. It does not concern mongrels masquerading as wild turkeys, but has to do with the pure-blooded aristocrat of our vast swamps and forests that I and my forebears have known since the Colonists first set foot on Carolina soil. If in its telling I wax enthusiastic, bear in mind that, unlike Macaulay, I am not forgetting "the accuracy of a judge in the veneration of a worshiper," but rather, like Saul of Tarsus, am but speaking "forth the words of truth and soberness.'

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My boyhood was spent on a large Southern plantation amid conditions ideal for the development of a sportsman. My father, an ardent hunter, a skilled horseman, and an expert shot, always owned excellent horses, a good pack of hounds, and one or more well-trained bird dogs, and from my earliest youth I was the constant companion of his sports. In addition, I am a native of the low country of South Carolina, which, variety considered, is perhaps the greatest game paradise on this continent. Doves and partridges (the absurd misnomer quail had not yet been applied) teemed in field and forest, ducks

thronged river, pond, slough, lagoon and marsh, whitetail deer abounded in swamp, bay and woodland, and over practically the same territory as that of the deer ranged the king of all, the wild turkey. Such were the forces of heredity and environment that compassed my youth, and strange would it be, indeed, if a gun and a day afield did not still afford me the greatest pleasure of life.

But this has to do specifically with the wild turkey, so to that subject we shall now come. It has been stated by some not in a position to know, that the genuine Eastern wild turkey is extinct. This is absolutely incorrect. From information received from sources apparently reliable, I am inclined to believe that the turkey found wild in many states today is a mongrel; but this is not true of our bird. There are in the coastal section of this state hundreds of thousands of acres of heavily timbered river swamps, bays (swamps without running streams) and woodlands on which no domestic turkey has ever set foot, simply because no man has ever lived there to own one, and in this territory the wild turkey flourishes today just as he did when the first settlers came.

Viewed from any standpoint, the wild turkey excites admiration. Built tall and slender after the fashion of an athlete, he

is the very embodiment of grace, caution and action; or, as the mountaineer said, a combination of "steel spring and chicken hawk." His little blue head houses a brain marvelous for sagacity and cunning, and his beady black eyes never deceive him, whether the object be still or moving. Archibald Rutledge in his charming writings frequently refers to the sagacity of the whitetail buck, and I freely concede that among all creatures of the wild this one occupies a high place when it comes to taking care of himself. But I have hunted both, and in my candid opinion a hermit wild gobbler, when it comes to outwitting his foes, is even more wily than the foxiest old buck. The hunter has not yet lived who can stalk such a gobbler to within shotgun range, or can call him to within such range, except in the mating season. During my life span of more than a half century, I have seen hundreds of wild turkeys, both alive and dead, have killed many of them myself, and have seen scores killed by others, and I have yet to see the hermit gobbler that was brought to bag when given an even break by his slaver.

Audubon's great painting of an old wild gobbler in his "Birds of America" is an excellent representation of this majestic bird, portraying as it does both the coloration of plumage and the shape of body. The whole back and breast are of a metallic bronze that glistens like burnished brass in the sunlight; the rump feathers are barred with black and gold; the tail coverts are a deep reddish brown, and the terminals of both tail and rump feathers are reddish brown. Red heads, squat heavy bodies, white or yellowish tips to the terminals of feathers, and the absence of red legs, all indicate mongrel blood, and are never seen in our birds.

In hunting the wild turkey, the first thing to know is something of its habits. At the outset let me say that there are three distinct types of turkeys known to all experienced hunters. These are (1) mixed turkeys, (2) old gobblers, and (3) hermit gobblers. The first group comprises the hens and the young of both sexes of the season. These usually band together in flocks of various sizes. If such a flock is scattered, a skilful hunter can usually call one or more within range and thus make a kill. As a rule, no selfrespecting old gobbler ever herds with a band of mixed turkeys, and as the season advances even the young gobblers forsake such flocks. On the contrary, gobblers of two years of age and upwards usually band together in droves that may contain as many as a dozen or more individuals. When scattered, the members of such a band can be called up by a good hunter. but as a rule it requires more skill than in the case of mixed turkeys. Finally comes the hermit. This wily old rascal is usually of the largest size, and he scorns the company of all of his kind. Instead of coming to a yelp, he runs when he hears it, and as a consequence seldom graces the table of even the most expert hunter.

I confess the wild turkey has always fascinated me, and before I was 15 years old I had already killed several. As the years have come and gone I have continued this, my favorite sport; and while my bag has not been as large as that of others, I have met with a fair degree of success. My largest kill for a single season was ten, which was too many, even if it was only half the legal limit.

But all of this hunting was with the shotgun, and I decided it would afford more sport if I were to take to shooting turkeys with a rifle. I felt that by so doing I might bring to bag some of the crafty old hermit gobblers that only by misfortune would ever fall victims to a shotgun, and that I would also fool some of the wise gobblers, both young and old, that had the habit of coming to within a hundred yards of the caller, and there yelping till it grew tiresome without coming a foot nearer.

The selection of the proper rifle for this purpose presents a serious problem. The wild turkey is almost as tenacious of life as a woodchuck, and vet as McIlhenny declares in his book "The Wild Turkey and Its Hunting," the good breast meat when struck by an improper bullet will "spatter like soft butter," and the game as a consequence will be ruined for table purposes. As illustrative of their vitality. I may say I have riddled a big gobbler with buckshot only to see him go on for a half mile and disappear from view in the heavy timber without any indication that he was going to fall. In my boyhood days the old rolling-block Remington rifle had quite a vogue in our section, and I remember distinctly hearing it said that this rifle. in both .28 and .32 calibers, was worthless as a turkey rifle, as the bullet merely passed through the body, inflicting a mortal wound, but the bullet lacking punch, the turkey in most cases flew away to fall dead in a place where finding and retrieving it were both impossible. I hunted for many years with a friend who used a Marlin Model 27 in the .25-caliber Stevens. He was an excellent shot, and yet he told me he never had retrieved a turkey he shot with this rifle, though he mortally wounded many. He told me he had seen some killed instantly by the .32-40, but that he had also seen it mortally wound them and yet fail to stop them.

Recently one of the best turkey hunters in this section was relating to me his experience in using a rifle on this game. He stated that he camped once for a week in a section of the immense swamp of Great Pee Dee River, where turkeys were abundant, and that his only weapon was a .32-caliber rifle carrying a lead bullet and equipped with iron sights. During the week he shot down some seven or eight turkeys and retrieved one.

Some years ago an old hunter residing in my home city of Florence, S. C., acquired two heavy Pope rifles with Ballard actions, and with telescope sights. These rifles were in .28 and .32 Special calibers, and proved very good killers with heavy, round-nose bullets. The first owner of the .28-caliber rifle told me he killed five turkeys straight with it, and retrieved four. The .32 Special has about the same record, and it is no uncommon thing for a turkey pierced through the body by its heavy bullet to get up and fly several hundred yards before dying.

The problem is complicated by the fact that all of our best turkey hunting, especially until near the close of the season, is in the deep river swamps adjacent either to the river itself or to the lakes and streams with which the swamps abound, and a turkey must be killed or else be irretrievably lost. It is not conducive to good spirits to see a splendid gobbler dart at the crack of the rifle and finally fall in the water or other spot where you cannot possibly reach him.

My first turkey rifle was a Niedner .25-35 on a Winchester single-shot action. My first shot was with iron sights at an old gobbler in a tall, thick pine at 125 vards. The soft-nose bullet amoutated the left thigh, but the gobbler flew a mile. I found him three weeks later after the hogs had eaten him. I next acquired both a Springfield and a Krag, but have never had a fair shot with either. However, I should regard both as inefficient for instantaneous kills when using spitzer bullets at low velocities, while with such bullets and any mushrooming type of bullets at high velocities, they would be too destructive. My brother, Rev. W. E. Davis, of Princeton, W. Va., a most expert rifleman, states that they would both be excellent turkey rifles with the 220-grain round-nose bullets, and I am inclined to agree with such opinion.

I then turned to the .25 Remington Model 30-S, which I had equipped with a Hensoldt Zielvier telescope with Niedner mount. Late one windy afternoon I roosted a bunch of turkeys in a large river swamp-gum and cypress pond. As I crept along the pond in the gathering dusk, they kept flying from me. Finally I spied one standing in the top of a tall tupelo about 150 yards away. The scope had been sighted in for 100 yards, and dropping behind a log I held the tip of the post well up on the turkey's neck. This shot was a miss. The turkey then squatted on the limb, and the next time I held a little lower. This shot broke the neck about two inches below the head. The bullet was a Western Lubalov 117-grain hollow point, and it made quite a hole, but struck too high to spoil my meat. A few weeks later I shot another turkey with the same rifle. This time I used either the same bullet or a soft point of the same weight, and driven by the same charge of powder, viz, 30 grains of No. 171/2. This shot was from the car window, and the turkey was in a thicket into which it had run as we approached over an old woods road. The distance was 65 paces. The bullet struck in the right thigh and came out at the top of the left thigh. The entrance was about the size of a silver dollar, while the exit would have accommodated a man's fist. A short time afterwards I shot a barred owl with a similar load at the same distance, and all I got was a bag of feathers. It is therefore apparent that a mushrooming 117-grain bullet at around 2,400 f.-s. destroys too much meat to be considered the ideal turkey rifle.

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During the summer of 1931 I acquired a Springfield M-1 .22-caliber rifle, which on Colonel Whelen's advice, I had Captain Woody chamber for the .22 Hornet cartridge. On this rifle Niedner mounted a Hensoldt Zielvier scope with Niedner mount, and I stocked this rifle to suit my

notions. On a visit to my brother in West Virginia I carefully sighted this rifle in, and used it very successfully on our ground-hog hunts. As it was too light for deer, however, I decided to hunt turkeys with the Remington until the deer season closed, as our preserve contains vastly more deer than turkeys.

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I got one chance with the Remington. and it made me sick. While sitting on a deer stand in a grove of enormous pines near the river bank, I heard a swish of wings and turned in time to see a big gobbler alight about 125 yards away in the straw of one of the tallest pines. I got into a good position, and while because of the straw I could not see anything but the gobbler's head. I held the cross-hair where I thought his body ought to be, and fired. Untouched, he flew to another pine and settled on an open limb. I now took careful aim just below the crop, and again missed him clean. He then deliberately sailed right by me and not 30 yards away, and I had no shotgun with which to rebuke his impudence by breaking his neck! On this occasion I was using full-jacketed 117-grain bullets, and I feel sure the scope was out of alignment, as nothing else can explain two such inglorious misses. At any rate, I retired both the Remington and the scope to the gun cabinet for the remainder of the season.

Shortly after Thanksgiving in 1931, I had an opportunity to give the Super-X .22 long rifle hollow-point a test. shooting companion roosted a bunch of turkeys containing several old gobblers, and before daylight next morning we were on the ground. That morning I had my Lewis Magnum 12-gauge shotgun and also a remodeled Winchester 52 rifle with fullsized barrel cut to 22 inches. occasion I finally yelped up an old gobbler. Just after coming into view around the roots of a blown-down tree, he broke into a run and I shot him with the Magnum. He arose and headed straight for the river, which was about 250 vards away. Before reaching it, however, he tumbled, and when he struck the ground he tried to run. I snatched up the 52, and when I got to within about 50 yards of him, I dropped to my knees and sent a Super-X .22-caliber hollow-point through him. This entered about the center of the right thigh and passed out at the butt of the left wing, making a hole about the size of a lead pencil throughout its course. The gobbler was trotting when this bullet hit him, and he continued to trot for about 10 feet farther. This turkey was mortally wounded, and even in that condition this bullet did not have sufficient punch to knock him down.

I tried to shoot another turkey with this same rifle shortly after that, but without success. I was behind a very large log and I called him right up to the other side of it, but could not induce him to come around the end where I would have a chance to shoot. I was particularly anxious to get a shot at this turkey, which was a young gobbler, as I wanted to test this load on one that had not been wounded. While it will kill a turkey if properly placed, and while I would use it for this purpose at short range in a good rifle equipped with telescope sights, yet I am decidedly of the opinion that this is not properly a turkey cartridge.

My opportunity to use the Hornet on a gobbler finally came, and in a rather unique way. My friend and shooting partner, Tom Gregg, has a hunting camp in the lower end of Marion County, on the peninsula between Great Pee Dee and Little Pee Dee rivers. This section is a long, wide waste of black-jack oak barrens, flanked on either side by extensive-timbered river swamp, which makes ideal turkey country. We went down to the camp, spent the night, and early next morning set out to locate a flock of turkeys. But the rain came and the wind blew, and finally we were forced to return to camp. After drying out and eating dinner we decided to go home, a good 50 miles away. So we set out, but while Tom drove I kept the Hornet in hand and an eye out for any turkeys that might be trekking over the sand dunes. We had proceeded two or three miles when we intercepted a flock of about a dozen just before they reached the road. They were about 200 yards away and running like mad when we first saw them. Tom brought the Ford to a standstill as quickly as possible. I eased the barrel of the Hornet out of the side window, and holding just above the fleeing flock, fired into the scrub black-jacks. At the report the fugitives sprang into the air, and it was an inspiring sight to see them sail majestically away. We turned the car into the scrub oaks and managed to work our way through them to the point where the turkeys had flushed.

It was still raining and the wind was Suddenly Tom exclaimed, fairly high. "Look at that old gobbler!" I looked in the direction in which he was pointing, and there beheld a lone gobbler proudly marching along the dividing line between the sand dune and a pine flat. He stopped just opposite to us and fully 100 yards away. I slipped the rifle barrel through the window and rested it on my left hand. Placing the cross-hair as nearly as possible on the center of his back, I pressed the trigger. The gobbler went down as if struck by a bolt of lightning, and when I reached him he was stone dead. To my amazement he was not an old gobbler at all, but the largest young one I had ever seen. I brought him to the car, and after putting him in, climbed in myself out of

the rain. Not five minutes later I looked across the dune in front of us, and there saw a hen coming directly to us and running like a streak. When she was within about 30 yards of the car she abruptly doubled on her track and went back as fast as she had come. As she was running straight away I had her well centered with the cross-hair, but just as I was firing she swerved to the right behind a tree, and thus escaped untouched.

Tom grew enthusiastic, and declared that two shots from a car within five minutes was truly "turkey hunting de luxe." Both he and I have hunted all day many times without ever seeing a turkey, much less obtaining a shot, and to obtain in the manner we did these two shots at the wildest, wariest game bird in existence was most unusual. The explanation of it is that the gobbler was away from the flock when they flushed and had squatted when they flew, while the hen had run off instead of flying, and was merely coming back to the place where they had been scattered for the purpose of rejoining the flock. This ended our good luck, however, as we found it impossible to call up any other members of the band.

The load used in this instance was the regular Winchester factory load with soft-nose bullet. The bullet entered to the left of the backbone, and making a hole about the size of the little finger through its entire course, came out between the fork of the wishbone, thus passing through the crop. It did not touch the breast and thus had no opportunity to destroy any meat; but judging from the size of the wound, I do not believe it would have proven destructive even if it had gone through the breast. I shot a redtail hawk squarely through the breast with the same cartridge at about the same range, and while it killed like a sledge hammer, it destroyed no flesh. From these experiences I am constrained to believe this is the ideal turkey cartridge up to 200 yards. Beyond that I should prefer the Springfield or Krag with the 220-grain bullet, or a .25-caliber rifle handling at fairly high speed a heavy full-jacketed bullet with blunt nose.

In all my hunting I use telescope sights. While I have killed several turkeys with them, I would not advise the use of the hunting-type telescopes for this purpose. I have owned and tested nearly all makes and types, and after so doing am firmly of the opinion that the Lyman 5A, Fecker 4.5X, and Malcolm 4X are decidedly the best for this type of hunting. I cannot kill a running gobbler with any kind of sights when he is in thick timber, and I have yet to find the man who can do it. Hence, why for a theoretical advantage should I handicap myself with a telescope

(Continued on page 29)

Rifles for Dangerous Game

By COUNT VASCO DA GAMA

(Concluded from October Issue)

URTHER up in the scale of heavy magazine rifles we find again Messrs. Rigby with their .416, shooting a bullet of 410 grains, propelled by 70 grains of powder and traveling at the speed of 2,371 f.-s., delivering a blow of 5,110 pounds. In their catalog Messrs. Rigby admit that this rifle is built only for those who want express gun ammunition without expecting to pay the price of the gun itself. A man I met in Africa had one of these .416 rifles by Rigby. The recoil I found much more severe than that of my own express, which, however, was much more powerful; this being due to the fact that the Rigby weighed only 91/2 pounds, which is too light for ammunition of this type. It is absolutely impossible to operate the magazine action of this gun from the shoulder, because of the weight of the weapon and the extra long cartridge case. In my mind this type of gun, although perfectly well manufactured by its makers, is absolutely impractical.

The same thing applies to the .425 of Messrs. Westley Richards. Here the bullet also weighs 410 grains, the speed is 2,359 f.-s., and the muzzle energy 5,022 ft.-lbs. All the remarks that I have made about the .416 from Rigby apply exactly to the .425 from Westley Richards.

This pretty well exhausts the list of the outstanding magazine rifles made in England, leaving aside the Lee-Enfield and B. S. A., which fire the British service ammunition. The bullet of these cartridges, being pointed, is not at all fit for big-game hunting in Africa, regardless of the fact that it has been used by certain hunters there.

Although the actions of these English weapons are made in Germany by the Mauser Company, the finished weapons have over the standard German Mauser the advantage of an infinitely better barrel, which will easily last five or six times as long as the German barrel, insuring also better accuracy; and also the balance of these guns is infinitely better than the balance of the German guns. Needless to say, in order to fit one perfectly a rifle has to be made to order, a thing which a British gunmaker will accomplish with consummate ease and perfect results. It is necessary to try a rifle without a collar. coat, vest, or suspenders: in other words, in the same condition as you will shoot in Africa; and when quickly throwing the gun to your shoulder, your eye should come exactly in the line of aim of the two sights without any additional movement

from the shoulder or neck to bring your eye into position. In order to obtain this result only a made-to-order rifle will be satisfactory in the majority of cases.

Some Belgian manufacturers also have tried to establish magazine rifles, copying those made in London. But they do not have the right steel for the barrels, or the wood for the stocks, or the experience of their London colleagues; and the Belgianmade guns of this type are the ones I would never care to use, as I consider them unreliable. When trying them, once, as I have told above, the stock broke in two; and another time the case stuck to the improperly finished chamber of the barrel in such a fashion that I had to use great effort in order to open the bolt. Should this have happened to me in front of an elephant I would not be here to tell about it.

The double express rifles look more or less like a double shotgun. The leading makers of these weapons are unquestionably Westley Richards, Rigby, and Holland & Holland, the latter firm having perhaps more experience than the others. They can be had in all sorts of bores, even those used in magazine rifles, such as the .375, etc.; but as a rule, they are made to use much heavier ammunition.

Holland & Holland recommends the .500-465, of which I had one that cost me \$700, as the price of these rifles made by any of the leading gunmakers is about £140 sterling. The .500-465 from Holland's fires a bullet weighing 480 grains. with 75 grains of M.D.T., which charge I had reduced to 73 grains in order to allow for possible overpressure due to high temperatures under the tropics. This gun balances to perfection. I never had a misfire, or any other trouble of any kind; and with its locks it can be compared with the most expensive Swiss watch, as far as precision and workmanship go. ejectors work perfectly, and after 700 shots the Whitworth steel barrels were in as good condition as when new. Contrary to the idea that even the best made English rifles cannot stand for a long time the high pressures of these ammunitions, after 700 shots not a thousandth of an inch of play could be detected in the breech, while I have seen in Africa expresses made by Belgian manufacturers which were out of commission after 200 shots. The speed of this ballet is 2,140 f.-s., while the striking energy is 4,980 ft.lbs. The bullet of such a gun has a terrific penetration, and at 25 yards will easily go through a tree of ordinary wood $3\frac{1}{2}$ feet in diameter, but, of course, it will not go through the skull of an elephant—nor will the bullet of any other rifle made.

The outstanding feature of the Holland rifle is the extreme ease with which the locks can be detached for cleaning or inspection purposes. These two locks are maintained together by a screw which goes through both locks and the stock of the rifle. The head of this long screw has a small knob which can easily be operated with two fingers, thus permitting a dissembling of the locks without resorting to a screwdriver. As this knob is patented no other manufacturer can use it.

The locks of the Rigby rifle can be detached in the same way as those of the Holland, but the screw, instead of having that patented knob, has an ordinary split head, calling for the use of a screwdriver.

In the Westley Richards the locks, instead of being taken apart sideways, can be taken off from underneath the rifle, also without the help of tools. Holland & Holland still continue to make to order the two biggest bores ever made for express rifles since the advent of smokeless powder: the .577 and the .600. The former of these two rifles fires a bullet weighing 750 grains, with 90 grains of powder, delivering a blow of 5.483 pounds; while the .600, firing a bullet of 900 grains with 100 grains of powder, delivers a blow of 6,800 ft.-lbs. The terrific recoil of these two weapons does away with the main advantage of the expresses, viz., the possibility of firing almost instantaneously the second shot. These rifles weigh between 14 and 16 pounds. They are, consequently, very difficult to manipulate and carry, and the noise developed by the terrific amount of powder which they fire warns the game in a radius of many miles of the presence of the hunter, and from that aspect alone they are not to be recommended.

The efficacy of these extra heavy bullets is by no means greater, as far as elephants go, than that of a higher-speed smaller bore, like the .465 from Holland's; both of these big guns as a matter of fact being unable to stop an elephant simply with the shot delivered. I was once hunting elephants on the Kole River in the Belgian Congo in the company of a Portuguese hunter established in that country and who used a .577 double express. We ran into an elephant on the banks of the River, which was there a good 15 feet

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above the water level, and I gave the other man the first shot; he missed the brain. The elephant did not even acknowledge the bullet, but moved slowly toward another thicket, where the Portuguese hunter was. This man fired the two barrels of his .577 straight into the elephant's head at no more than 25 yards. I saw the elephant hit by the two bullets, and his head did not even move. But these shots so enraged him that he came for me in a straight line. The patch where I was, being particularly thick, I could not see very well; and my two Holland & Holland .465 bullets, both missing the brain, again failed to stop him but enraged him still more, and in order to escape death I found myself obliged to jump into the river, holding my rifle with the left hand; and in that condition I dove into a river infested with crocodiles. Afraid to leave the shore and unwilling to give up my rifle, I clung for a few seconds to a root, but it gave way and I went head first once more into the torrent, where the elephant, through a short circuit around the patch of bush, had gone both to wash his wounds and to look for his enemy, whom he had heard fall into the water. I should have certainly perished at the hands of the crocodiles or by drowning, or have been crushed by the elephant, if my hunter, carrying my .318, had not given that weapon to the Portuguese, who with one shot through the brain disposed finally of the elephant, which remained half sunk in the middle of the river. I describe it only as an additional proof that even the cannonlike bullet of a .577 express rifle has no effect whatsoever upon an elephant unless the brain, heart, or an artery is hit, in which case a small rifle will do just the same trick.

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An exception to this rule in favor of the big-bore rifles can be made in the case of attempting to break the backbone on an elephant. I have already had occasion to try this shot, which is very effective, and which can be attempted when you come upon an elephant from the rear, when no opportunity to fire at the head or the heart can be had. Then, aiming at any one of the vertebra of the backbone, a big bullet will smash it; and the elephant, although perfectly alive, will collapse, unable to coordinate the movement of his fore legs and his rear legs. If an elephant is seen sideways, and if for some reason or other no other shot can be had, if given a bullet at about 8 inches from the top of his back the elephant will fall, permitting you to get near him while he lies on the ground and give him then a heart or brain shot. If coming upon an elephant exactly from the back, as happened with me a few times in thick bush, it is necessary to aim more or less at the root of the tail but at the same time being careful to give the bullet sufficient angle so that going through the tail and lower part of the .476 firing 520-grain bullets with 75

the body it will anyway reach the backbone. In herds this is to be avoided, because the elephant upon falling will call to his mates, who will at once rush towards him trying to help him to his feet with their trunks and tusks; and if at that time they catch your wind, which undoubtedly they will, you may have to face a few enraged elephants that will promptly dispose of you. It is necessary to avoid as much as possible elephant herds, and should you find yourself encircled, the brain shot is the only one to advise, as then the elephant collapses without a sound and is unable to call for help.

Messrs. Rigby manufacture an express rifle of slightly higher ballistics than the .465 from Holland. The bullet weighs 500 grains, with a speed of approximately 2.100 f.-s., and delivering a blow of about 5,000 ft.-lbs. This rifle is just as good as the Holland, and preference between these two rifles for the amateur of heavy expresses should depend only upon the delay of delivery of the two manufacturers, which varies according to the time at which the order is placed. land also makes an express rifle firing the .375 cartridge already described, although this cartridge is being mainly used by them in their magazine weapon. Of course, if used in an express the cartridges, instead of being rimless, have a flange so that the extractors or ejectors will catch.

Messrs. Westley Richards manufacture about the widest range of express rifles; and we find there not only the oldstyle single barrel hand-lever sliding-block rifle, but expresses of the higher type, with external hammers and also hammerless.

The Westley Richards rifle is characterized by its hand-detachable locks which can be very easily removed by hand without a screwdriver. These locks are not apparent as in the Holland, but are of a design which resembles to a certain extent those of the Anson & Deeley actions. They can be taken of the mechanism with great ease for cleaning or inspection purposes. The line of bores includes the .256 firing 106grain bullets with 31 grains of powder; the .303 firing 215-grain bullets with 30 grains of powder; the .318 firing 250-grain bullets with 50 grains of powder; the .360 firing 314-grain bullets with 41 grains of powder; the .375 firing 270-grain bullets with 40 grains of powder: the .400 firing 400-grain bullets with 55 grains of powder: the .400 firing 400-grain bullets with 60 grains of powder; the .425 firing 410grain bullets with 65 grains of powder; the .480 firing 450-grain bullets with 70 grains of powder; the .465 firing 480grain bullets with 75 grains of powder; the .470 firing 500-grain bullets with 75 grains of powder; the .475 firing 480grain bullets with 75 grains of powder;

grains of powder; the .500 firing 570grain bullets with 80 grains of powder: the .577 firing 650-grain bullets with 90 grains of powder; the .577 firing 750grain bullets with 100 grains of powder, and the .600 firing 900-grain bullets with 100 grains of powder. We find here the same bores as used by Holland & Holland and also Rigby and Jeffery.

Personally I have never been able to see the reason why such an extensive line of ammunition is used. There are at least 35 sorts of ammunition on the British market, many of the cartridges differing so slightly one from another that the only result obtained is to create a great deal of confusion and to render it almost impossible for a man going to Africa or to any other part of the world to find there exactly the ammunition used in his rifle. An illustration of this fact is given by the following bores: the .450 with a 480-grain bullet; the .465 also with a 480-grain bullet, slightly larger in diameter but having exactly the same ballistics; the .470 firing a 500-grain bullet, and the .475 firing a 480-grain bullet. It seems to me that any one of these calibers could replace the three remaining ones, which would bring about a considerable simplification in the manufacture of both the barrels and ammunition.

Messrs. Jeffery follow more or less the wide line of manufacture of Messrs. Westlev Richards: the two express rifles which they recommend being the .400 with a 400-grain bullet and the .475 No. 2 with The difference in a 480-grain bullet. power of these rifles is considerable, but the .400 has the advantage of weighing 2 pounds less than the other and being quite sufficiently powerful to act as an express.

The Winchester catalog gives an accurate table of penetration enabling the sportsman interested in that particular characteristic to compare the respective values of different rifles. No such information is available regarding British rifles. I consulted the leading rifle manufacturers, who all told me that their rifles using the ammunition which they recommended had the most penetration.

As this, of course, could not be so, I requested the Imperial Chemical Industries, which have taken over the Nobel Company, to conduct for me comparative tests, and this is the result which the Imperial Chemical Industries forwarded

Cartridge	Bullet: Weight:	Number of %" Boards (50 Yards)	Penetration in Inches
.333 Jeffery Rimless	300 grs.	87	6534
Westley Richards .31	8		
(Magazine rifle)	250 grs.	80	60
Rigby .350 (Maga-			
zine rifle)		67	50%
.404 Jeffery Rim'ess	400 grs.	67	5034
Holland .375 (Mag-			
azine rifle)	300 grs.	71	5354
Holland .465 Ex-			40.4

As can be seen, the .318 Westley Richards and the .333 Jeffery have, by far, more penetration than other rifles. This characteristic is in my mind more important than foot-pounds of energy, especially on larger animals which are entirely impervious to any shot that does not reach a vital spot. No matter how powerful the .318 Westlev Richards, such is the texture of bones, hide, and flesh of the large African animals such as elephants, that this bullet will never go clear through an elephant's skull or body. Of the former I have had proof time and again, and once having shot in self-defense a rather small elephant. I fired at his body from about five or six feet after he was dead, for the purpose of seeing if the bullet would go through him. It did not.

We have left aside so far in this study a few rifles very remarkable as far as ballistics go, and in which the manufacturers have sought above all else to give to the bullet a very flat trajectory, increasing greatly the speed and reducing at the same time the weight of the bullet. These rifles may be very good on antelopes of no great bulk, and also on some American and European game, but they do not have sufficient power to be of any good at all in Africa except for a very limited kind of game, which, as a matter of fact, could be dealt with just as satisfactorily with another type of rifle which could at the same time be used on a more diversified list of animals. Among these rifles we find the .240 from Holland & Holland, firing a very light bullet and attaining a speed of around 3,000 f.-s. This naturally provides a flat trajectory. but I consider these cartridges and rifles of the fancy type made only for a sportsman using a rifle in an amateurish fashion and not depending upon it for serious work in Africa. For shooting animals at. say, 250 or 300 yards, a little practice will enable you to do away with the necessity of using the additional leaves of the rear sight, as by aiming a few inches higher the bullet is then placed right. Messrs. Holland & Holland are presenting now what they describe as the Super .30 Rifle, which fires three different types of bullets, weighing, respectively, 150, 180, and 220 grains. The speed of these rifles is quite high, being 3,100 f.-s. for the first of these bullets, 2,800 for the second, and 2,300 for the last. For bucks, etc., this rifle may be satisfactory, but on dangerous game my favorite .276 from Rigby with a moderate speed of 2,300 f.-s., is by far more satisfactory.

We will now speak of the American not throw the rifle out of rifles, the Springfield and the Winchester. a fault that in the bolt rifle The Springfield action is more or less of the same type as the Mauser, as everythrough much experience.

body in this country knows, but it is sold for quite a high price, being for the custom-made sporting models in the neighborhood of \$180 retail price, which is £35 sterling. With due respect to the American gunmakers, the finish of the Springfield does not compare with the finish of a British rifle which can be had in England at the same price. The ammunition used in this rifle, of which a description would be quite unnecessary in an American sporting magazine, has the inconvenience of being too long, consequently not permitting as fast a repeating action as I should like. The 150-grain pointed bullet is out of the question for big game shooting in Africa. The 180grain, having 2,700 f.-s. velocity, is too fast, for the reason that a bullet which is very fast in proportion to its weight will deflect on heavy bones; and in this line I see only the 220-grain bullet as able to give satisfaction if used in Africa.

In the Winchester line the cartridge which I should prefer to use would be the old 35, firing a bullet of 250-grains and having a moderate speed of 2,200 f.-s.; but I must admit that these ballistics do not compare with the characteristics of the British .318, which for a bullet of the same weight develops 2,500 f.-s. velocity and a striking energy of 3,466 pounds against 2,670 for the Winchester 35.

One of the most interesting rifles that can be used in Africa is the .405 from Winchester. What I consider most extraordinary about it is the fact that although the ammunition it uses was designed in 1895 its ballistics compare on an equal basis with those of most modern rifles, and are only superseded by the last creations of Westley Richards, Holland & Holland and Jefferys.

The dominating advantage of the Model 95 Winchester is the rapidity of fire. This in a charge would be an unquestionable advantage. But this advantage has also an inconvenience. Nervous or inexperienced hunters are apt to fire too much and too quickly without aiming properly or keeping an exact count of the cartridges left in the magazine in the excitement of the pursuit. Many accidents have happened because the hunter thought he had one more round in the magazine—and was mistaken.

Of all the ready-made rifles I have handled, the Winchester .405 is certainly the best balanced. Its recoil is negligible, and the operation of the magazine does not throw the rifle out of the line of aim, a fault that in the bolt rifles of the Mauser or Mannlicher type can only be avoided through much experience.

It is unfortunate, in my way of thinking, that the manufacturers have not made the necessary efforts to eliminate all the screws which are necessary to loosen in order to dissemble the mechanism. Very often in the jungle while changing bullets or through other causes dirt of some kind falls into the action which is apt to jam it. The weapon would be decidedly improved upon as far as Africa goes if the action could be dissembled for cleaning or inspection without the use of tools. Should this be achieved it would then be an easy matter to inspect the barrel occasionally while trekking in the forest, to make sure no dirt had fallen inside. With an express this inspection is extremely easy. By removing the cartridges the entire barrel is in full view. In the Mauser the bolt has to be taken out as well as the cartridge. And this also applies to the Mannlicher; while in the Winchester a small mirror, which can be broken or lost, has to be used in addition to opening the action.

If these little inconveniences were to be removed I do not think there is any other rifle which could compare with the Model 95 Winchester for its ease of handling, rapidity of fire, and balance.

Messrs. Winchester are now making a very remarkably balanced rifle firing the Springfield ammunition-the Model 54; and they seem to have come to the same conclusion that I have regarding the nonadvisability of using very high-power cartridges with bolt actions, due to the fact that the recoil prevents a quick operation of the bolt. Consequently, the Winchester Company does not seem to go into higher cartridges than the .30 as far as their bolt action goes. The bolt handle of their action, which latter has the same characteristics as the Mauser, is bent a good inch toward the butt of the rifle, which for many hunters may be a great advantage if they consider operating the mechanism from the shoulder. It has the advantage also of permitting a slightly longer stock, which in most cases would not be satisfactory if the bolt had to be within easy reach. On the other hand, if the stock is too short the inconvenience is that the bolt will in many cases almost reach the hunter's nose.

We do not contend at all that this little review of the most important rifles has not many omissions, but we have endeavored to leave aside guns or ammunition we have not come in contact with, in order to avoid the error generally committed as far as rifles and African equipment go by people who do not hesitate to express their views without any experience to warrant such opinions.

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The End



TWO WYOMING SAGE HENS, A LYMAN-SIGHTED .32-20 WINCHESTER-AND GOOD HOLDING

The Front Sight on Small Game

By ALLYN H. TEDMON

HAD known for a long time that all riflemen did not hold the front sight on small game the same. However, I had paid no especial attention to the matter until a letter from P. H. Manly from out in Idaho set me to thinking. And the more I mulled the thing over, the more there seemed to be to it.

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"I didn't know anyone put the front bead on anything aimed at," Mr. Manly wrote me. He went on to remark that he thought everybody held the front sight under the "bull," "as the military shots work it." Then he proceeded to explain that he held the tip of his front sight—a flat-top white post, where he "wanted to hit."

As a result of all this deep thought I got busy and wrote a number of small-game hunters, located over the United States, and asked each one the same question: "How do you hold your front sight on small game?"

The last letter to arrive left me with no doubt that there are at least three accepted methods of aligning the front sight on a woodchuck's head. The first is to hold the bead, or tip of front sight, some distance below the point of impact. The second system is to hold the tip of the front sight below and just touching the point of impact. The third method is to center the bead over the point of impact.

The first method given is what I personally call the target hold, and I find that many of the older riflemen use this. "I want to see what I am aiming at," A. W. Peterson explained to me while he continued to work on a Stevens 441/2 rifle which he was converting into a .22 Hornet. "I hold right under the bellyline of a prairie dog." His rifle, then, is sighted so that the bullet will rise to the point of impact. Charles Cole, also of Colorado, uses this method of sighting; because, as he wrote, "in shooting at a rabbit's head I place the top of bead about 34 inch below the eye." Charles Newton, it seems, had a leaning toward this style of holding, and for a man who has done a large amount of target shooting it seems to me to be a very logical method for him

The second method mentioned is that used by Col. Townsend Whelen. "I always use aperture rear sights," he wrote, "and in lining up the sight, I line up the top of the front sight in the center of the aperture. Then in all game shooting I hold the top of the sight just touching the exact spot on the animal that I desire to hit." Chauncey Thomas uses this method of aiming, and says that "the system of covering the target with the front bead, or 'drawing a fine bead' with a knife-blade open sight a la Daniel Boone, is as ob-

solete as the ramrod." Capt. E. C. Crossman prefers to have the tip of his front sight just touch the spot aimed at.

Leslie M. Lindahl, of Nebraska, says that it is his practice "to hold the bead on small game so that the bullet will hit at the point of aim or directly in line with the top of the bead-front sight." David Drew, of Alaska, sights his rifles "to group at the top of the bead." B. S. Tedmon, Jr., my brother in Colorado, holds "so the bullet should hit a rabbit's eye when the tip of the bead touches the lower edge of the eye." Herbert R. Longo, of New York, holds "below the spot on the animal that I hope to hit."

J. V. K. Wagar, of Colorado, sights his many rifles so that "the bottom of the bullet will strike the game at the point where the tip of the front sight is held." Dr. Malcolm Dean Miller, the hard-holding medico from Ohio, and Norman A. Reed, from the state of Maine, both tell me that this is their pet method of lining the front sight. Gould, in his old book, "Modern American Rifles," remarks that "one tries to place the sight where it is desired to have the bullet hit."

There are a great many riflemen who do center the front-sight bead over the point of impact. Alfred Loetscher, of Iowa, is very emphatic when he says, "Personally,

(Continued on page 30)



The Regional Matches

RACK in 1926 when, like this year, the Camp Perry National Matches were thrust aside by Congress as a move in the direction of economy, forgetful of the vital importance of national preparedness, a commentator metaphorically described the substitute matches that year by a retort of a youngster who wanted pie but got bread and butter:

"It's better'n nothin' when a fellow's hungry but it's a poor excuse for pie."

However, may it be said that wherever regional matches were held this year. nothing was overlooked to give the shooters the best possible under the conditions. The N. R. A. had the fullest and earnest cooperation of the commanding officers and other officers of the military posts where the shoots were staged. Every assistance in conducting the matches was made available; everything was done to make the shoots "Little Camp Perry" meets in fact.

The appreciation of the N. R. A. and its members goes out to those who so conscientiously and energetically cooperated to give to the shooters of America the best possible substitute for Camp Perry under the conditions.

Elaborate regional shoots were held in seven of the nine Corps Areas of the country-eight in all, for two were held in the Ninth Corps Area because of its great extent-and in another Area, the Second. one match, the President's, was fired. It was unfortunate that lack of funds this year precluded the usual extensive fall Sea Girt, N. J., program (Second Area), where the President's Match was fired. Only one Corps Area, the Fourth, was without a regional shoot.

The N. R. A. had apportioned its various Camp Perry trophies among the different shoots and, besides, awarded approximately 1,400 medals, gold, silver and

The Corps Area Matches were: Camp Curtis Guild, Wakefield, Mass., First Corps Area: Sea Girt (President's Match only), Second; Marine Barracks, Quantico, Va., Third; Camp Perry, Fifth; Fort Sheridan, Ill., Sixth; Fort Des Moines, Iowa. Seventh: Fort Bliss, Tex., Eighth, and Fort Lewis, Wash., and San Luis Obispo, the latter the California National Guard range, Ninth. All the meets were efficiently and smoothly conducted and drew substantial entries.

It is noteworthy that at all the shoots, the President's Match was the most popular. The "President's Hundred" will be selected on the basis of scores fired in the President's Match at all the regional meets.

(Complete reports of the Seventh and Eighth Corps Area shoots did not arrive in time for publication but will be published in a later issue.)

First Corps Area

The first of the Corps Area Matches were held in conjunction with the annual rifle and pistol tournament of the United Services of New England. This shoot, which was for the First Corps Area, was held over the Camp Curtis Guild range at Wakefield, Mass., from August 7 to 14. Two of the N. R. A. Camp Perry national trophies, the Crowell and Coast Guard, were assigned to the shoot.

Entries in the N. R. A. events ranged from 51 in the Camp Perry Instructors' Match to 88 in the President's Match. The N. R. A. courses fired and the entries in each follow: Coast Guard, 62; Camp Perry Instructors', 51; Members', 69; Crowell, 69; Civilian Club Members, 13; President's 88. These were in addition to the annual matches of the United Serv-

The three high, with ties broken, in the N. R. A. matches were:

President's: Lt. W. W. Davidson, Marines, 144; L. L. Evans, b. m. 2cl., Coast Guard, 144; Sgt. Hamrick, Marines, 142. Coast Guard: Sgt. A. L. Gramm, Mass. N. G., 98; M. N. Cobb, b. m., Coast Guard, 97-47; Lt. W. W. Davidson, Marines, 97-45; Crowell: Gy. Sgt. Zsiga, Marines, 50: L. W. Parish, Coast Guard, 50: Sgt. Hamrick, Marines, 50: Camp Perry Instructors': J. Q. Alligood, c. b. m., Coast Guard, 50-48; Priv. R. O. Anderson, Mass. N. G., 50-46-48; A. G. Stevens, N. H. civ. 50-46-46. Members': Sgt., Zsiga, Marines, 50; Parish, Coast Guard, 50: Sgt. Hamrick, Marines, 49. Civilian Club Members': F. Vossahlik, 92; H. F. Walker, 92; W. W. Bastey, 91.

In the United Services' matches, the individual events open only to New England shooters were taken as follows: I. Langille, Mass. civ., Hunting match; Lt. J. E. Dunleavy, Mass. N. G., Walker match: Pvt. J. H. Hampson, Mass. N. G., Engineers' match; G. E. Cutting, Mass. civ., Queen match; C. E. Elroy, Mass. civ., Essex County match.

M. O. Wilson, Coast Guard, won the Ratigan match, Cummings match and Wade Combined-Fire match. M. N. Cobb, Coast Guard, took the Colgan match; Gy. Sgt. Blakely, Marines, the Neidner match; G. B. Jacobs, Coast Guard, the 26th Division match, and Lt. W. W. Davidson, Marines, the Woodman match and Slow Fire Aggregate.

Sgt. A. L. Gramm, Mass. N. G., won the Phelan match: Pvt. Chaney, Marines. the Cutting match: I. T. Harvey, Mass. civ., the Massachusetts Civilian match; Sgt. Zsiga, Marines, the American Legion. Service and Civilian League match, and I. O. Alligood, Coast Guard, the M. O. W. W. match and the Lombard match. Col. W. A. Malbouf, Mass. N. G., was the winner of the Dolbeare match; Sgt. C. Saunders, Mass. N. G., the MacLane match: S. Branderfield, Coast Guard, Eldridge match; Cpl. A. S. Beluse, Mass. N. G., the Ouimby match; Lt. S. G. Middleton, Coast Guard, the Pierce match; Capt. J. C. Reinert. Mass. N. G., the Estimating Distance match and the Armscrafts match, and Cpl. Dodrill, Marines. the Rapid Fire Aggregate.

The team matches were won as follows: Col. E. V. Seeser and Pvt. C. S. Daugherty, Marines, Army Ordnance Two-Man Team match; Coast Guard, the Caswell match; C. D. Jacobs and Guy Seam, Coast Guard, the Marine Corps Long Range Two-Man Team match; Headquarters Company, 182d Inf., the 104th Infantry match, the 182d Infantry match, the National Guard Company match, the First Corps Cadets' match and the Stanchfield match; Marines, the Hayden All-America; 182d Infantry, the National Guard Regimental match and the Bancroft Regimental match; East Lynn Post, the American Legion match and the American Legion Tyro match; Pvts. R. O. Anderson and W. D. Brown, Mass. N. G., the Ancients' Two-Man Team match; Massachusetts National Guard, the New England Interstate Two-Man Team match.

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Winners of the pistol events were: W. T. Desmond, Boston police, Colt and Youngman matches: A. Markhard, Boston police, the Police Individual Tyro match; Boston civilian team, the Artillery Four-Man Team match; Massachusetts National Guard, the Cavalry Pistol Team match; Boston police, the Rosenfield and Hultman matches.

Second Corps Area

The President's Match was the only one of the N. R. A. Camp Perry matches held in the Second Corps Area. With 40 entries, it was fired at Sea Girt on September 24, in conjunction with the September week-end program of the Jersey Rifle Association in cooperation with the New Jersey National Guard.

George S. Bergman was the winner of the match with Walter R. Walsh placing second and George O. Van Orden taking third place. As in all the regional meets, the scores of competitors in the match at Sea Girt will receive consideration in the selection of the President's Hundred, in addition to the fact that the competitors the cup for high Marine shooter; Paul

finishing in the medal positions will receive N. R. A. Camp Perry medals.

Due to lack of funds, the usual Sea Girt fall shoot was dispensed with this year by its sponsors, and a series of week-end matches during September was substituted. Sea Girt was the logical scene for Second Corps Area N. R. A. matches. but the necessary change in the plans of the sponsors of the shoot precluded such a competition.

Third Corps Area

With officers of the Marine Corps as hosts, the Third Corps Area regional N. R. A. shoot was held over the Quantico (Va.) Marine ranges from August 24 to 28, inclusive, the last day being devoted exclusively to small-bore rifle events. Upwards of 200 rifle and pistol marksmen. service. National Guard and civilian, par-

Col. Charles H. Lyman, an old hand in the shooting game and long experienced in conducting shoots, was executive officer. With the able and conscientious assistance of Maj. John Potts, assistant executive officer: Capt. Harry E. Leland, chief range officer, and other officers stationed at Quantico, Colonel Layman kept the matches running in efficient and smooth order and was earnestly attentive to the needs of the reservation's guests. C. B. Lister, secretary-treasurer of the N. R. A., was in charge of the statistical force which functioned throughout the matches with dispatch. And the splendid sportsmanship of the competing aggregations and their captains was noteworthy.

Following the conclusion of the last .30-caliber rifle match on the 27th, Brig. Gen. J. H. Russell, commanding general at Quantico, presented trophies and medals to the winners at an assembly of competitors, visitors and officers with the Quantico Marine band enlivening the occasion with music. General Russell paid tribute to the fine sportsmanship and grit of the competitors and to the N. R. A. for bringing about the Quantico shoot and giving the Marines a chance to serve them.

The Marine and Coast Guard shooters, the former under Maj. D. L. S. Brewster and the latter under Lt. Com. W. J. Kossler, grappled for the big spoils of the meet, with the Marines coming out on top in the individual events and the Coast Guardsmen in the team matches. G. W. Walker, pfc, Marines, won the Marine Corps Cup. The Coast Guard team took the Herrick trophy and the Enlisted Men's trophy. Most of the trophies in the President's matches had also been assigned to Quantico, and they were won as follows: Sgt. W. A. Easterling, Marines, winner of the match, the President's letter and Goulden, who placed third, the trophy for high Coast Guardsman: G. W. Seabright. Va. N. G., National Guard Association trophy for high National Guardsman: Cpl. A. Anderson, 34th Inf., Farnesworth medal for high Infantryman: Sgt. H. Boudinot, D. C. N. G. (Engrs.), Society of Military Engineers trophy for high Engineer: William Cook, Washington, D. C., Capt. Edwin H. Clarke trophy for high Civilian, and Capt. J. J. Davidson, Pottsville. Pa., Reserve Officers' Association trophy for high Reserve Officer.

The competitors were favored by almost cloudless skies throughout the first four days of the meet, but on the final day, the day of the small-bore matches, an exasperating fishtail wind gave trouble. especially during the early afternoon relays, and the sky most of the time was overcast

The three high in the different matches, ties broken, follow:

Scott (110 entries): Ervin Frye, c. m. m., Coast Guard, 50-40; Gy. Sgt. Robert L. Jennings, Marines, 50-45; 1st Lt. J. L. Patterson, Va. N. G., 49. Leech Cup (100 entries): 1st Sgt. Carl Wilck, Marines, 104; L. L. Evans, Coast Guard, 104; Gy. Sgt. J. Blakely, Marines, 103. Sgt. O. A. Guilmet, Marines, 50 and 9 "V"s"; Gy. Sgt. Morris Fisher, Marines, 50, 6 "V's"; Ervin Frye, Coast Guard, 50, 6 "V's"; Ervin Frye, Coast Guard, 50, 6 "V's";

Marines, 50, 6 "V's"; Ervin Frye, Coast Guard, 50, 6 "V's"; Brvin Frye, Coast Guard, 50, 6 "V's"; Brvin Frye, Coast Guard, 50, 6 "V's"; Marine Corps Cup (131 entries): Pfc. G. W. Walker, Marines, 98; Gy. Sgt. J. Blakely, Marines, 97. Navy Cup (127 entries); Paul Goulden, c. b. m., Coast Guard, 96; M. N. Cobb, Coast Guard, 96; Lt. R. J. Fleming, U. S. Engrs., 95.

Coast Guard, 89; M. N. Cobb, Coast Guard, 96; Lt. R. J. Fleming, U. S. Engrs., 95.

Coast Guard, 98; Sgt. J. P. Blount, Va. N. G., 97; Wilfred Mitchell, Coast Guard, 97.

Herrick (6 entries): Coast Guard, 1,775; Marines, 1,769; District of Columbia N. G., 1,742.

Enlisted Men's Trophy (7 entries): Coast Guard, 561; Va. N. G., 548; Marines, 548.

President's (144 entries): Sgt. W. A. Easterling, Marines, 145; Sgt. W. F. A. Trax, Marines, 144; Paul Goulden, Coast Guard, 144.

Grand Aggregate (75 entries): Gy. Sgt. Blakely, Marines, 579; Lt. L. S. Moore, Marines, 575; Gy. Sgt. S. J. Zsiga, Marines, 574.

Championship Regimental Team (6 entries): 13th Engineers, Fort Humphries, Va., 544; 34th Infantry, U. S. A., 541; Va. N. G., 541.

N. R. A. Pistol Team (4 entries): Marines, 1,259; District of Columbia police, 1,216; Coast Guard, 1,203.

N. R. A. Individual Pistol (13 entries): Gy. Sgt. John Blakely, Marines, 260; Gy Sgt. Morris Fisher, Marines, 257; G. M. Stewart, District of Columbia police, 255.

Marines, 257; G. M. Stewart, District of Columbia police, 255.

Two-Man Team Long-Range Small Bore: R. H. McGarity and son, Don, Washington, D. C., 374; Capt. J. C. Jensen and Sgt. H. Parsons, D. C. N. G., 372; Lt. H. Everett, D. C. N. G., and Sgt. J. P. Blount, Va. N. G., 372.

Two-Man Team Short-Range Small Bore: Maj. J. W. Hession, O. R. A., Bridgeport, Conn., and Fabian J. Paffe, St. Augustine, Fla., 778; A. N. Dow and H. C. Van Sleen, 770; J. P. Blount and H. Everett, 769.

Short-Range Individual Small Bore: Maj. C. S. Shields, District of Columbia N. G., 391; J. P. Blount, 390; Ralph McGarity, 388

Lang-Range Individual Small Bore: G. A. Ninas, Gaithersburg, Md., 195; H. C. Van Sleen, 192; Hugh E. Riley, 191.

Fifth Corps Area

Camp Perry was distinctly the possession of the small-bore shooters, together with a number of pistol shots, this year. It was there that the Fifth Corps Area regional shoot, confined to the smallbore rifle and pistol, was held, but despite the limitations there were approximately 100 competitors on hand and at times the population neared 300, including competitors' families and visitors. More than a dozen states, from Florida to California. were represented. The meet opened August 30 and continued through September

Chief among the events were the firing of the American scores in the Dewar. International Railwaymen's and Fidac matches, and chief among the achievements of the individual shooters was the setting of a new Camp Perry record for the Camp Perry Individual by Homer H.

Jacobs, of Dayton, Ohio.

As recorded in the last issue, the Dewar team triumphed over the British railroaders. In the Fidac match, the American Legion team, captained by R. E. Louden. of Butler, Pa., turned in a score of 1,937. just 7 points better than the score which won for it last year. However, the outcome of the Fidac competition will not be known until the targets of teams of the competing nations are checked by the Fidac headquarters in Paris, France.

Homer Jacobs' score in the Camp Perry was 298 x 300, bettering by a single point the best previous score made in the event at Perry since the target was changed in

1928

The Wiles' name was conspicuous on the Dewar team: Russell Wiles, Sr., the father, was a coach; his son, Bradford, was a shooting member, and his other son, Rus-

sell, Jr., was an alternate.

The Dewar team was selected on the basis of aggregate score in the other special Dewar tryouts, the Individual Short-Range and Two-Man Team Short-Range matches. When the scores of the United States and British teams become official, the complete bulletins will be published in these columns.

The three high, with ties broken, in the various matches were:

Individual Long Range (51 entries): Edson Klinkel, Butler, Ind., 194; W. J. Summerall, Way-cross, Ga., 194; Wylie Montgomery, Avinger, Tex.,

Rinkel, Butler, Ind., 194; W. J. Summerall, Waycross, Ga., 194; Wylie Montgomery, Avinger, Tex., 193.

Camp Perry Individual (54 entries): H. H. Jacobs, Dayton, Ohio, 298; M. L. Israelson, Corry, Pa., 297; F. J. Paffe, St. Augustine, Fla., 296.
Long-Range Two-Man Team (15 entries): Thurman Randle, Dallas, Tex., and L. A. Wilkens, Norwood, Ohio, 786; Stanley Channel and J. W. Giffen, Hanover, Ohio, 782; W. P. Schweitzer, Hillside, N. J., and T. Samsoe, Perth Amboy, N. J., 779.
Individual Short Range, any sight (57 entries): C. S. Mundy, Toledo, Ohio, 398; Roy A. Loder, Erie, Pa., 397; William P. Schweitzer, Hillside, N. J., 397.
Preliminary Dewar (80 entries): Charles T. Paugh, Wayne, Mich., 794; Thurman Randle, 792; L. A. Wilkens, 792.
Individual Short Range (88 entries): Virgil Richard, Pittsburgh, 400; Bradford Wiles, Chicago, 399; Ellis Lea, Charleston, W. Va., 399.
Short-Range Two-Man Team (38 entries): Thurman Randle and L. A. Wilkens, 795; John Adams, Stanford University, Calif., and W. J. Summerall, 795; J. A. Wade, Boise, Idaho, and J. F. Kling, La Crosse, Wis., 794.
Small-Bore Wimbledon (54 entries): L. A. Wilkens, 105; Russell Wiles, 195; R. A. Swigert, Bowling Green, Ohio, 194.
Small-Bore Grand Aggregate (39 entries): Bradford Wiles, 1079; William P. Schweitzer, 1,073; L. A. Wilkens, 1,079; William P. Schweitzer, 224.

Fifth Corps Area Pistol championship (9 entries): A. W. Hemming, Detroit, 266; R. S. Marshall, Lima, Ohio, 263; Joe Lamphing, Cincinnati, 262.

INTERNATIONAL SMALL-BORE TEAM MATCH

	50 Yards	100 Yards	Total
J. F. Kling, La Crosse,			
Wis	199	199	398
Wis. Wm. P. Schweitzer, Hillside, N. J. L. A. Wilkens, Norwood,			
side. N. I	197	200	397
L. A. Wilkens, Norwood,			
Ohio	199	198	397
Ohio Bradford Wiles, Chicago,			
Ill	200	197	397
Ill. Stanley Channel, Hanover,			
Ohio R. E. Louden, Butler, Pa.	197	199	396
R. E. Louden, Butler, Pa.	198	198	396
John Adams, Stanford			
University, Calif	199	197	396
J. A. Wade, Boise, Idaho	200	196	396
C. G. Hamby, Atlanta, Ga.	198	197	395
H. M. Paschal, Jr., At-			
lanta, Ga	198	197	395
Thurman Randle, Dallas,			
Tex	198	196	394
D. E. Jacoby, Athens,			
Ohio	197	196	393
Ohio W. L. Wilson, Erie, Pa.	198	195	393
A. J. Yearsley, Piqua, Ohio	198	195	393
Dan Burr, Hanover, Ohio	198	195	393
H. D. Griffith, Pittsburgh,			
Pa.	197	194	391
Virgil Richard, Pittsburgh,	105	407	200
Pa	195	195	390
Gail Evans, Steubenville,	105	104	200
Ohio	195	194	389
W. T. Bryan, Roslyn, Pa	196	191	387
V. Z. Canfield, Akron,	102	102	206
Ohio	193	193	386

Team Alternates: R. A. Loder, Erie, Pa.; C. T. Paugh, Wayne, Mich.; Walter R. Walsh. Union City, N. J.; Russell Wiles, Jr., Chicago, Ill.; John W. Aitken, Overly, N. Dak.

Team Coach: H. H. Jacobs, Dayton, Ohio.
Adjustant: Dale D. Arnold, Mansfeld, Ohio.
Assistant Coaches: Frank J. Kahrs, Bridgeport, Conn.; John W. Hession, New Haven, Conn.; Russell Wiles, Sr., Chicago, Ill.: R. C. Pope, Dallas, Tex.; E. V. Menefee, Rising Sun, Ind.; W. J. Summerall, Waycross, Ga.; W. A. Tewess, Cincinnati, Ohio; W. H. Richards, Bridgeport, Conn.; J. Paffe, St. Augustine, Fla.; F. D. Tice, Bellefontaine, Ohio; T. P. Samsoe, Perth Amboy, N. J.; Milo D. Coleman, Pittsburgh, Pa.

Official Scorer: Oilie M. Shriver, Washington, D. C. Official Observer: Eugene F. Mitchell, Washington, D. C.

RAILWAY INTERNATIONAL SMALL-BORE TEAM MATCH

	50 Yards	100 Yards	Total
Gail Evans, Steubenville,			
Ohio	200	197	397
F. J. Paffe, St. Augustine,			
Fla	199	197	396
J. F. Kling, La Crosse,			
Wis	199	196	395
Harold Collett, Irwin, Pa.	196	197	393
R. D. Maxwell, Columbus,			
Ohio A. N. Dow, Jacksonville,	198	195	393
A. N. Dow, Jacksonville,	***	101	202
Fla.	197	193	392
F. D. Tice, Bellefontaine,		40.5	
Ohio	196	195	391
Vick Reed, Bellefontaine,	194	194	388
L. W. Montgomery, Av-	194	194	300
L. W. Montgomery, Av-	194	193	387
inger, Tex E. M. Farris, Portsmouth,	194	193	301
Ohio	196	191	387
J. W. Aitken, Overly, N.	190	191	301
Dob.	195	191	386
Dak. O. F. Seth, Portsmouth,	193	191	300
Ohio	190	195	385
Jack Frost, Toledo, Ohio	194	191	385
J. F. Woleslagle, Larimer,		***	203
Pa.	195	189	384
H. G. Olson, Harrisburg,			
Pa	191	193	384
R. M. Morton, Churdan,			
Iowa	190	193	383
Edward Lawton, New Ken-			
sington, Pa	193	189	382
W. E. Kelly, Ellett, Ohio.	190	190	380
G. J. Mundy, Toledo,			
Ohio	191	188	379
T. J. Toler, Fort Worth,			
Tex	189	185	374

Team Captain: F. G. Passe, St. Augustine, Fla. Team Coach: Thurman Randle, Dallas, Tex. Official Scorer: Ollie M. Shriver, Washington, D. C.

Official Observer: Eugene F. Mitchell, Washington, D. C.

AMERICAN INTERNATIONAL SMALL-BORE TEAM (FIDAC)

	Total
H. D. Griffith, Pittsburgh, Pa	198
A. J. Yearsley, Piqua, Ohio	
Fred Gassman, Matamoras, Pa	195
V. Z. Canfield, New Philadelphia, Ohio	194
R. V. Nutter, Portsmouth, Ohio	194
B. R. Goldsberry, Athens, Ohio	193
A. E. Hart, Cleveland, Ohio	192
C. R. Ripley, Dennison, Ohio	192
T. Samsoe, Perth Amboy, N. J	191
Thurman Randle, Fort Worth, Tex	191
	1.027

Alternates: C. C. Lowther, Jones Corner Post No. 402, East Brady, Pa.; J. Fred Engert, Mohawk Post No. 25, Herkimer, N. Y. Team Captain: R. E. Loudan, Blankenship Post No. 117, Butler, Pa. Team Coach: Ollie Shriver, Costello Post No. 15, Washington, D. C.

Sixth Corps Area

"The possibles will now shoot off the ties

With these words from the chief range officer, Maj. P. J. Mcdonnell, 2d Inf., Sgt. Jens B. Jensen, U. S. Cav., and M. O. Wilson and Ervin Frye, of the Coast Guard. stepped to their places on the firing line to break a tie in the Camp Perry Instructors' Match which opened the Sixth Corps Area shoot at Fort Sheridan, Ill., September 1 to 5, inclusive.

These three experts then tied with 49's and it wasn't until the third shootoff that there was any break, Frye getting a 49 and Jensen and Wilson again tying with possibles. On the final try, Wilson got a 45 and Jensen, 49. It was an auspicious

start for the meet.

In the Crowell match, Daniel E. Moore, Ir., of Chicago, an engineering student at Notre Dame, came through with a possible and 7 V's to win. W. R. Mitchell, of Indianapolis, shooting in the Wimbledon for the eleventh time, came through with a possible and 12 V's in this match to get revenge for last year when he was runner-up. The high service rifle in the Wimbledon was fired by another W. Mitchell, a Coast Guardsman.

The real battle came the last day in the President's Match. Interest in the other 81 competitors was wanting after the 600vard stage was passed when it became known that Jensen and Paul Goulden, a Coast Guardsman, were tied at 98 with Jensen having a slight edge by virtue of a possible at 600. However, Goulden. shooting in a tricky 5 to 7 o'clock wind that was swinging at the rate of 1 to 11/2 points from normal between shots, staved in the bull until his last shot which was pushed out for a 4.

The high spot in the small-bore events came on Labor Day in the firing of the Fort Sheridan championship at 50, 100 and 200 yards. Carl T. Dunn, of Chicago, won with 295, taking the N. R. A. gold medal and the I. S. R. A. plaque given by L. G. Aldrich, an I. S. R. A. member. ing general at Fort Sheridan, had direct the President's Match, with 173 entries. charge of the matches and had detailed 25 officers and 200 men to handle the matches and the manner they put on the show was a credit to the organization and preparation which had been made. Among the 158 participants were men who had been to the National Matches year after year and they were unanimous in that they had never seen a smoother running meet.

The N. R. A. Camp Perry trophies awarded at this shoot were the Wimbledon Cup, the A. E. F. Roumanian Team trophy, the Long-Range Small Bore trophy and the Long Range Two-Man Team trophy.

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The three high in the matches, ties broken, follow:

broken, follow:

Camp Perry Instructors': Sgt. Jens B. Jensen, U. S. Cav., 50; M. O. Wilson, Coast Guard, 50; Ervin Frye. Coast Guard, 50. Crowell: Daniel E. Moore, Jr., civ., 50; W. Mitchell, Coast Guard, 50; Conrad Nordhus, American Legion, 50.

Marine Corps Cup: J. G. Freitag, Ill. N. G., 96; G. F. Petersimes, Detroit R. and R. Club, 96; Steve Monahan, Marines, 95.

A. E. F. Roumanian: Coast Guard, 565; American Legion, 534; Michigan Civilians, 545.

Scott: Milton Hanson, civ., 50; S. D. Monahan, American Legion, 50; Sgt. Jens B. Jensen, 49.

Navy Cup: Milton Hanson, civ., 97; C. E. Nordhus, civ., 95; Joseph Werp, Ill. N. G., 94.

Wimbledon: W. R. Mitchell, Ind. N. G., 100, 12 V's; L. L. Evans, Coast Guard, 99; W. L. Cocroft, Ill. civ., 99.

President's: Paul Goulden, Coast Guard, 147; Sgt. Jens B. Jensen, 144; C. E. Nordhus, American Legion, 139.

For Sheridan Small Bore Championship: C. T. Dunn, Ill. civ., 295: Don Wilson, Ill. civ., 294; W. M. Garlington. Ill. civ., 292.

Individual Small Bore Short Range: Fred Johansen, 395; E. R. Selleck, 393; E. A. Mercier, 392.

Individual Small Bore Long Range: Lewis Schmiedl, Austin R. C., 198; Fred Johansen, 197; Don Wilson, 197.

Two-Man Team Small Bore: Ralph Izard and John Freitag, 780; E. Neumann and R. Lovell, 778; C. E. Nordhus and Fred Johansen, 197; Don Wilson, 197.

Two-Man Team Small Bore: Ralph Izard and John Freitag, 780; E. Neumann and R. Lovell, 778; C. E. Nordhus and Fred Johansen, 198; E. J. Neumann, 187.

Any Pistol: E. J. Neumann, 187.

Any Pistol: E. J. Neumann, 187.

Any Pistol: E. J. Neumann, 187.

Cannel St. J. Neumann, 187.

Any Pistol: E. J. Neumann, 187.

Any Pistol: E. J. Neumann, 187.

Cannel St. J. Leven, 188; E. J. Neumann, 187.

Cannel St. J. C. Cochrane, civ., 157.

Timed Fire Pistol: Sgt. Jens B. Jensen, 181: S. D. Monahan, American Legion, 169; R. C. Singer, Army, 169.

Slow Fire Automatic Pistol and Revolver: John Fehrman, civ., 189; Carl I. Lains, civ., 184; Sgt. Jens B. Jensen, 182.—Daniel E. Moore.

Ninth Corps Area, North

Rifle and pistol shooters of the Northwest assembled at Fort Lewis, Wash., September 1 for the largest event of this kind ever held in the Pacific Northwest. They were greeted with ideal weather which continued throughout the matches.

A total of 264 registered for the various events. Over one-third of the total registered were from the Navy. The first day was taken up with sighting in over the course from 200 yards up to and including the 1,000-yard range. The next morning began in earnest, starting off with 169 entries in the Navy match which was won by Sgt. Thomas Hughes, 4th U. S. Inf.,

Gen. Frank C. Bolles, the command- with a score of 96. The largest event was

The matches were conducted by Mai. C. M. McMurray, G. S. C. (Inf.), executive officer; Maj. I. W. Kenney, Ord. Dept., Wash. N. G., as the National Rifle Association representative and advisor; Maj. L. E. Atkins, 6th U. S. Engrs., chief range officer, and 2d Lt. H. B. Packard. 10th F. A., as statistical officer.

The three high in the various matches

Navy (169 entries): Sgt. Thomas Hughes, 4th Inf., 96; L. E. Wilson, Cashmere, Wash., 96; Don W. Cook, Wash. N. G., 95.

Camp Perry Instructors' (162 entries): Sgt. John Carlson, 4th U. S. Inf., 50; V. M. Craig, U. S. S. Tennessee, 50; L. Gentner, Oreg. N. G., 49.
Scott (160 entries): L. Gentner, Oreg. N. G., 50; D. W. Houston, U. S. S. Tennessee, 49; L. E. Wilson, Cashmere, Wash., 48.
Members' (161 entries): J. C. Blodgett, Marines, Bremerton, 50; E. W. Mosby, U. S. S. Nevada, 50; W. H. Green, U. S. S. New York, 50.
President's (173 entries): John W. Beale, Wash. N. G., 145; L. E. Wilson, Cashmere, Wash., 140; J. E. Berns, Bremerton, Wash., 138.
Wimbledon (146 entries): Ist Lt. P. J. Roberts, Calif. N. G., 99; Harvey O. Schofield, Tacoma, Wash., 98; J. E. Berns, Bremerton, Wash., 97.
Championship Regimental Team (10 entries): 4th U. S. Infantry, 557; 161st Infantry, Wash. N. G., 555; Special Troops, Wash. N. G., 551; No. Infantry, Str. 101st Infantry, Wash. N. G., 1112; U. S. Navy No. 2, 1,092; Washington N. G., No. 2, 1,083, Grand Aggregate (68 entries): Lt. J. P. Roberts, Calif. N. G., 415; J. E. Berns, Bremerton, Wash., 411; N. Glossbrenner, Yakima, Wash., 411.
Coast Guard Rapid Fire (64 entries): D. W. Houston, U. S. S. Tennessee, 96; L. E. Wilson, Cashmere, Wash., 95; Paul J. Roberts, Wash. N. G., 95.

95. Civilian Interclub (5 entries): Kitsap Rifle and Revolver Club, 343: Tacoma Rifle and Revolver Club, 333; Tacoma Rifle and Revolver Club, No. 2 team, 329.

team, 329.

N. R. A. Individual Pistol (56 entries): Lt. L. V. Stoidard, Wash. N. G., 270; R. L. Lahay, Seattle, Wash., 264; L. E. Wilson, Cashmere, Wash., 263. Slow Fire Automatic Pistol (49 entries): C. E. Hendricks, U. S. S. New York, 182; Arthur L. Seabury, Wash. N. G., 179; R. M. Anderson, Seattle police, 170.

police, 170.
N. R. A. Pistol Team (13 entries): Seattle Rifle Club. 1,289; Seattle police, 1,270; Washington, N. G., 1,220.

N. G., 1,220. Junior Small Bore (15 entries): Chet Paulson, South Tacoma, Wash., 194; Douglas Miller, Tacoma Y. M. C. A., 192; George Hamill, Tacoma, 191. —Maj. I. W. Kenney.

Ninth Corps Area, South

The last reverberations of rifle and pistol fire have died away among the hills of the San Luis Obispo National Guard training camp where the Ninth Corps Area matches for the N. R. A. were conducted this year under the auspices of the California State Rifle Association. The rifle and pistol matches were fired September 30 to October 2, inclusive.

Conspicuous showings in the rifle events were made by 1st Lt. Paul Roberts, Calif. N. G., in winning the Leech Cup match and the Grand Aggregate; for his second place in the President's Match and his top showing on the winning team in the Championship Regimental Team Match won by the 160th Inf., Calif. N. G., Col. Harcourt Hervey commanding.

The Clarke Memorial trophy for the high civilian in the President's Match was won by Hilliard Comstock, judge of the Superior Court at Santa Rosa.

A particularly brilliant showing was that of members of the 160th Inf., Calif. N. G. who won all the long range matches. including the Leech Cup, President's, Wimbledon and Grand Aggregate.

Of the legion of western rifle and pistol shots who attended this meet, high commendation was unanimous for the excellent officiating and the general efficiency of the affair. The meet was handled with dispatch under the direction of George Difani, president of the California State Rifle Association; L. A. Pope, secretary-treasurer: T. R. Barnes, chief statistical officer, and E. H. Henderson. Assisting in the fieldwork were Major Mc-Farland, of the California National Guard, chief range officer: Captains Shearer, Webb, Thompson and Blaisdel. Adjutant General Howard, of California. visited the range during the matches and promised to donate a large trophy for a long-range match during next year's shoot.

Light conditions were particularly trying. The writer measured the light with an exposure meter during the 1,000-yard match and found it to read one twentyfifth of a second for a 4.5 lens openingan opening which under good sunlight will permit a camera exposure of one fifteen-hundredths of a second on his speed camera. Fogs and overcast skies made "holding" during the long-range firing extremely difficult. Winds bothered the pistol shooters on their range, too, during certain periods of the firing.

A summary of the events, with the high three, ties broken, follows:

Crand Aggregate: Lt. Paul J. Roberts, Calif. N. G., Los Angeles, 424; Hilliard Comstock, Santa Rosa, 419; Ensign E. A. Ritchie, U. S. N., 419. Navy Cup: Henry J. Adams. La Mesa, 96; Charles S. Chapman, San Jose, 95; Willard Brown, Marines, San Diego, 93.
Camp Perry Instructors': Henry J. Adams. La Mesa, 50; E. R. Simmermacher, Madera, 50; C. A. Ritchie, U. S. N., San Francisco, 49.
Scott: 1st Sgt. Nolan Tillman, Marines, 48; J. H. F. Denham, San Francisco, 48; C. C. Moore, Palos Verdes Estates, 47.
Leech Cup: 1st Lt. Paul J. Roberts, Calif. N. G., 103; W. H. Green, cox., U. S. N., 103; Franck Laines, Santa Clara, 103.
Regimental Team: 160th Inf., Calif. N. G., 545; Navy, 544; 159th Infantry, 504.
President's: Pvt. William Carroll, Calif. N. G., Los Angeles, 143; Lt. Paul J. Roberts, 140; Hilliard Comstock, Santa Rosa, 139.
Wimbledon Cup: Lt. Arthur Shivell, Calif. N. G., Los Angeles, 99; Cpl. W. A. Cunningham, Calif. N. G., Los Angeles, 99; Sgt. Kenneth Wilkes, Calif. N. G., 99. Nola Tillman, Marines, was high with the service rifle, getting 97.
N. R. A. Pistol Team: Los Angeles police, 1,364; California Highway Patrol, 1,317; San Diego police, 1,313.

California Highway Patrol, 1,317; San Diego police, Police Pistol Team: Los Angeles, 1,414; San Diego,

1,383; Calif. Highway Patrol, 1,377. Individual Police Pistol: C. E. Ward, Los Angeles 277: Clair M. Corbin, Pasadena, 275; Harold E. Nichols, Bakersfield. 273.

Nichols, Bakersneld. 273.

N. R. A. Individual Pistol Championship: C. E. Ward, Los Angeles police, 284; J. J. Engbrecht, Los Angeles, 276; Clair M. Corbin, Pásadena, 275.

Angeles, 276; Clair M. Corbin, Pásadena, 275.
Right- and Left-Handed Pistol: Clair M. Corbin,
269, winning trophy offered by Capt. A. H. Hardy.
Rapid Fire Pistol: Clair M. Corbin, 187; J. J.
Engbrecht. Los Angeles, 186.
.22-Caliber Pistol: Clair M. Corbin, 184; James
E. Daves, Los Angeles, 184; J. J. Engbrecht, 182.
Slow-Fire Pistol and Revolver: J. O. Dirks, Los
Angeles, 176; C. C. Ward, 175; Mr. Oliver, 174.—
James Por. James Day.

Life Members Elect New Directors

THE Annual Members' Meeting of the National Rifle Association, which is generally held at Camp Perry in connection with the National Rifle Matches, was held this year at the Hotel Pennsylvania in New York City on September 18. A study of the Life Membership list indicated a greater concentration of members of this class within easy travel distance of New York than within striking distance of any other large city. The meeting was very well attended by Life Members, with a considerable number of Annual Members, Club Secretaries and State Secretaries taking part in the discussion.

In the absence of the President of the Association, Mr. Karl T. Frederick, the Second Vice-President, occupied the Chair and handled the meeting in a manner which was highly satisfactory to those

in attendance.

General Reckord, Executive Vice-President, in his report outlined the efforts which had been made by the N. R. A. to secure the repeal of the Sullivan Law in New York State and to have the Uniform Firearms Act ("the Hanley-Fake Bill") substituted. General Reckord particularly commended the work which had been done by Mr. Karl Frederick in organizing and conducting this campaign in New York State. The campaign had been successful up to the point of having the Uniform Law passed by both houses of the New York State Legislature, but Governor Roosevelt had vetoed the Uniform Bill and indicated that he felt the Sullivan Law should be continued. General Reckord assured the members that the fight for the repeal of the Sullivan Law and the substitution of the Uniform Firearms Act would be continued. He also reported that the Congress of the United States had placed its approval on the Uniform Firearms Act by passing this bill to govern the sale of firearms in the District of Columbia, and that President Hoover had also indicated his approval of the law sponsored by the N. R. A. by signing the bill as passed by Congress.

General Reckord also pointed out that while the National Matches had not been held in 1932 because of the elimination of the Appropriation from the War Department Budget, the N. R. A. had nevertheless made considerable progress in that the War Department is now definitely favorable to the continuation of the National Matches as an annual event and has made the Matches a part of the regular annual training program. He indicated that much of the credit for this changed attitude on the part of the War Department was due to the personal interest of Gen. Douglas MacArthur, Chief

THE Annual Members' Meeting of of Staff, and Gen. George Moseley, the National Rifle Association, which Deputy Chief of Staff.

General Reckord also pointed out that Congress had reduced the appropriation for assistance to civilian rifle clubs, in spite of strenuous efforts on the part of the Association to prevent such a reduction. He indicated, however, that conferences being held with the office of the D. C. M. would probably result in some changes in the plan of assisting civilian clubs which would relieve the situation somewhat.

At this point General Reckord expressed the appreciation of the Association to Col. J. M. Coward, who had just retired from the office of Director of Civilian Marksmanship and Executive Officer of the National Board for Promotion of Rifle Practice, for the cooperation which had been extended by Colonel Coward to the N. R. A. during his term of office.

In outlining the financial position of the Association, General Reckord pointed out that this year for the first time in six years he was unable to report a better financial condition than in his preceding report. The Executive Vice-President indicated briefly numerous steps which had, however, been taken to curtail expenses, including reduction in the personnel at Headquarters, reduction in salaries of the members of the Headquarters Staff and various other administration savings, and indicated the hope that by the end of the year the Association would show only a very slight, if any, loss. The small surplus which has been accumulated during the past six years for just such an emergency would be more than ample to take care of any slight loss which might be shown.

The Secretary-Treasurer, C. B. Lister, in his report indicated that while the gross income of the Association had been considerably reduced below the previous years, reports at Headquarters indicated an actual increase in shooting activity throughout the country. He stated that approximately 1,200 competitors had already participated in various Regional Matches, with two such matches still to be fired. His report also showed 21 active State Associations affiliated with N. R. A. as compared with 17 such Associations in 1931. There were 1,946 senior civilian clubs on the rolls of the N. R. A. as compared with 1,800 in 1931. The number of Junior Clubs remained at approximately the same figure as last year, but the number of Junior Qualification badges issued had increased approximately 20 per cent over last year.

Col. W. A. Tewes, who had acted as coach of the 1932 American Olympic

Team, then described for the benefit of the members the difficulties which had been faced in the 1932 Olympic Matches. Colonel Tewes summarized his statements in the following specific recommendations for future Olypmic Teams: First, that there should be closer supervision of the tryouts; second, that if possible financially or under the conditions of the Olympic Games there should be a reasonable number of alternates available; third, that the arrangements in so far as the selection of range facilities and equipment are concerned should be in the hands of experienced shooters instead of being handled by the general Games Committee; and fourth, that more time should be allowed team officers to become acquainted with the personnel of the team and with the conditions under which the match is to be fired.

Colonel Tewes paid high compliment to Capt. E. C. Crossman for the manner in which he fulfilled the duties which fell to his lot as the American representative in the Olympic shooting matches, and to Mr. Ned Cutting for his work as Team captain.

Mr. Frederick then explained to Colonel Tewes and the members the peculiar and complicated organization which handles the Olympic Games and which makes it so difficult to provide satisfactory arrangements for alternates and preliminary training.

The following members were then elected Directors of the Association for a term of three years: Maj. L. W. T. Waller, Maj. Gen. F. C. Ainsworth, Mr. Ralph H. McGarity, Capt. G. L. Wotkyns, Mr. R. F. Bridgland, Maj. Julian S. Hatcher, Dr. Loe A. Sutter, Mr. Seth Gordon, Mr. James F. McCue, Mr. Frank J. Kahrs, Col. Frank J. Schneller. Col. Fred M. West, Senator David A. Reed, Gen. Frank Maloney, Col. Robert F. Gadd, Com. M. S. Brown, Dr. Irving R. Caulkins, Mr. Harry C. Almy, Mr. Raymond C. Bracken, Mr. C. B. Lister.

The elections add two additional civilians to the Board of Directors of the Association, reducing by one the number of National Guard officers and officers of the Regular Services on the Board.

General discussion concerning the efforts of certain classes of reformers to enact antifirearms legislation led to the motion by Colonel Waterbury "that the members of the National Rifle Association heartily approve the work done by the officers of the Association in the campaign against the Sullivan Law, and for the adoption of the Uniform Firearms Law in New York State, and further, that it is the sense of this meeting that the National Rifle Association should continue this campaign in New York State and in other States." The motion was unanimously passed.

.45

410

One More Answer to the Anti-Pistol People

By HAROLD WENTLAND



K NOWING that these anti-pistol laws are all the bunk, and that there is nothing to prevent anyone from making his own pistol, I set out to see how easily this could be done.

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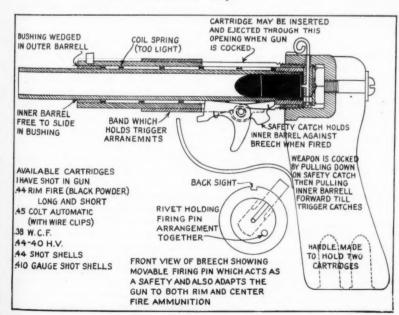
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EMAN

The photograph shows the result of my efforts, and the drawing shows its simple construction and the principle upon which it works. The total cost of the gun did not exceed 25 cents, as only the piece of pipe had to be purchased; the rest of the material was picked up as junk. The time required to make it was about one week. A unique feature of the gun is the fact that it can shoot most any cartridge from .44 to .50 caliber, and in both center fire and rim fire. Of course there is no tack-

driving accuracy, but up to 50 feet I believe that I could hit a man-size target every time. In the photograph is shown all the different cartridges I have fired in this gun. The gun itself is shown cocked, and equipped with two rubber bands to reinforce the coil spring, which was found to be too light to impart to the moving barrel sufficient force to explode the primer. With a heavier spring I believe the rubber bands could be dispensed with.

Considering the limited shop facilities at my disposal, and my own limited experience, one is led to wonder what manner of weapon could be produced by a skilled mechanic in a well-equipped machine shop.



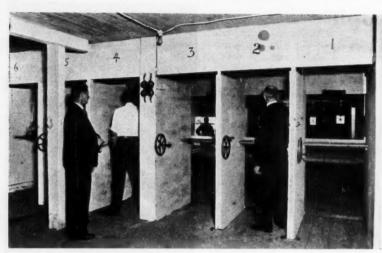
Wooden Colts



THE above interesting picture shows the craftsmanship of Lawrence M. Paul, of Chicago, in portraying, in handcarved wood models, the history of the development of the Colt revolver. The wooden models are less than one-third the size of the actual guns themselves, and represent the different models made by Colt since 1836.

It required about four months of Mr. Paul's spare time to complete this work, part of which time was spent in research and investigation, in the course of which Mr. Paul was permitted to study some of the rarer models of Colt revolvers found only in the possession of the foremost collectors in this country. The wooden models are correct to the minutest detail, and Mr. Paul has refused some attractive offers for the collection. Mr. Paul has also carved different sized wooden models of ships, statues, etc.

Fiala Range Popular



NEW FIALA RANGE IN NEW YORK CITY. CAPT. W. C. MAYER, THE INSTRUCTOR, IS AT EXTREME LEFT.

EARLY last June, Maj. Anthony Fiala, O. R. C., opened at 47 Warren street in New York City a modern, completely-equipped rifle and pistol range and in conjunction with it a school of firearms. Capt. Walter C. Mayer, well-known trainer of bank, police and other pistol shots, was installed as supervisor and instructor.

Since then, the range and school have gained wide and deserved recognition among marksmen of the city. A number of bank guards are availing themselves of the facilities for practice, Reserve officers are keenly awake to the benefits of the set-up, steps have been taken to interest various institutions in the developing of marksmanship skill among their

employes, and visitors from as far west as Minnesota and from Canada have been much impressed by the whole arrangement.

The facilities of the range, which has six boothed firing points and permits firing from all positions, are limited to individuals possessing pistol permits and credentials from employers or character references. Captain Mayer, who was formerly chief marksmanship instructor of the Chatham Phenix National Bank and Trust Company, has given his assistance in securing pistol permits for a number of shooters.

the set-up, steps have been taken to interest various institutions in the developing of marksmanship skill among their of which Major Fiala is president.

GALLERY MATCHES

THE annual N. R. A. Gallery Matches will get under way in December, with entries for the December matches closing the first day of the month.

All the gallery matches, including the interclub leagues, will be governed this year by the 1931 program. Attention of all competitors is especially directed to this fact.

The competitions division is now providing new medals for a .22-caliber pistol qualification course which will be open at all times.

CHALLENGES

The Lewiston (N. Y.) Rifle Club, which has radio facilities through amateur station W8GQT, transmitting on 40 and 80 meters C. W., wants matches during the winter with teams having like facilities, scores to be transmitted by radio. Course: indoor 50 feet, N. R. A. target, metallic sights, N. R. A. rules to govern; any or all of four positions. Communicate with E. S. Stevens, secretary, Lewiston, N. Y.

The Belle City Rifle Club, Racine, Wis., desires matches, following conditions: 12 or 6 men to shoot, 10 or 5 high to count; prone, sitting and offhand, 75 feet. After January 12, either 50 or 75 feet, telescope sights, palm rests, set triggers and Swiss butt-plate permitted. Address Voyle D. Ott, 2427 Hansen Ave., Racine, Wis.

The Grover Cleveland High School Rifle Club, girls' division, of St. Louis, Mo., is seeking matches with other women's and girls' rifle teams. Communications should be addressed to the Grover Cleveland High School Rifle Club, 4532 Louisiana Ave., St. Louis, Mo.

Principal Contributors in This Issue

WHEN in 1929 he was detailed to take charge of the Coast Guard rifle team LIEUT. COMMANDER W. J. KOSSLER knew little about target shooting. However, he applied himself to the task, with results that are pretty well known. With no preconceived ideas about the shooting game, Commander Kossler brought to bear on the different problems a mind both analytical and practical, and arrived at his own conclusions.

THOMAS N. LEWIS and C. L. QUICK are both of St. Louis, Mo. Mr. Lewis is forensic ballistician of the St. Louis Police Department, and Mr. Quick is an electrician and a firearms lover. Together they worked out the design of the Chronograph they describe.

KENNETH FULLER LEE, of Augusta, Maine, has been shooting since he was 10 years old, his first rifle being a .45-90 Winchester. He has been in the State Forest Service as Deputy and Chief Warden for 15 years, and has acted as guide to big game hunting parties during each open season, seeing hundreds of deer, black bear and a few moose shot with nearly all types of hunting rifles. He has himself owned some sixty rifles.

MARLIN R. KEMMERER lives in Allentown, Pa., and is a sporting goods clerk of the kind we all like to meet. He really knows guns. Mr. Kemmerer has been shooting ever since he was five years old, when he joined the other members of his family at Sunday morning target practice. He is particularly fond of pistol shooting, and has gathered in with the handgun many bull frogs, and other such small game, including blackbirds up to 50 yards range.

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HENRY E. DAVIS has another of his delightful hunting stories in this issue. His charming style reflects the personality of the writer, who is not unknown at N. R. A. Headquarters in Washington.

COUNT DA GAMA concludes in this issue his article on big game rifles. The entire da Gama family appear to be intrepid explorers and adventurers, for Countess da Gama accompanied her husband on his 2-year expedition in Africa, and in addition took their infant son, then less than two years old.

ALLYN H. TEDMON, of Littleton, Colo., has been an outdoorsman all his life. He writes, "My main experience with firearms has been derived from careful reading and their constant use for the past thirty years. * * * I found out about windage and the like in a wind that was blowing like hello, with a Florida atmosphere of about fifty below."

(Continued from page 8)

sidered the normal elevation for that man and gun at the corresponding temperature. A study of these completed sheets showed how much each man varied from his normal (temperature effect being automatically excluded) for light or for unknown causes. The maximum variation from normal, either high or low, was on the average from 1/2 to 3/4 minutes at 600 yards, and 34 to 1 minute at 1000 yards. It is interesting to note that on the whole the variation from normal with the iron sights was little more than that with telescopic sights. Occasionally there would occur a day when the amount off normal for almost the entire team would be in excess of this, but more about that later.

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It is apparent that if a certain kind of light caused a shift in point of aim for any individual, the plots on his data sheet representing that light condition would all be somewhat displaced above or below his normal line, and by a simple inspection of this sheet the mean amount of this shift could be determined. Here are the results for several months data at 1000 yards for about 20 men. For bright light with heavy mirage, six men averaged about 1/2 minute up; no change for the remainder. For a dark light, no material change for anyone. For a dull light two men averaged 1/2 minute down and for a shaded target (sun behind the target) six men averaged 1/2 to 1 minute up. About the same average applied to 600 yards but the amount of change was less. It must be understood that these are mean variations from normal. A man might be a minute or so high one day with a certain kind of light, but on another day with the same kind of light he might be low. It is readily seen that the net effect of light on the majority of the men were zero, and only in the case of six men could any constant relation be found for change of light and point of aim at 600 and 1000 yards.

Similar data kept for the short ranges showed absolutely no constant relation between light conditions and point of aim for anyone. The variation from normal at 200 and 300 yards was found to be on the average 1/2 minute either way. A general study of all data sheets indicated that all the rules for light could be boiled down to this: If a man were affected by light at all, he would have to come up about 1/2 to 1 minute from normal for any condition of light that made the bullseye indistinct, whether it was caused by mirage, sun behind the target, wet target, or haziness in the air. Contrary to the belief held by many men themselves, this data demonthem than they had supposed. Different For example, I personally found that with

normal but this variation proved to be haphazard and bore no relation to light conditions in the majority of cases, and could only be ascribed to the unpredictable errors of gun, ammunition, position, sight alignment and vertical wind currents. It must be remembered that I am speaking of group centers, not single shots. In distinct light, from whatever cause, usually resulted in larger groups, and variation of light during a string sometimes affected certain individuals, but the latter effect was apparently due to the lag in the accommodation of the eye to the change in the appearance of the target. It was a purely temporary condition, similar to the blindness experienced in going from a bright street into a darkened theater.

As has been stated, occasionally there would be a day when almost the entire squad would be way off their normal for This occurred very no apparent reason. rarely but was quite definite. Prevailing up or down currents might explain this, as it was noted on such occasions that the wind was fairly strong and steady. The phenomena occurred as much at 600 as at 1000 yards. The effect of even very high head or tail winds at 600 yards is negligible, but of course even a slight prevailing up or down current would have a great effect.

As an example, on a certain bright clear day at 600 yards, 90 per cent of the squad had to come up an average of 1 minute above normal. The wind was about 15 miles at 11 o'clock and was somewhat raw. There are two possible explanations: a prevailing down current, or the effect of the raw wind on the eye of the shooter, making it difficult to see clearly and having therefore the same effect as poor light. I personally incline to the former explanation, as light conditions appear to be much less guilty of playing tricks than supposed. The fact that even with telescopic guns the elevation required on some days was as much as a minute or more off the well established normal for the gun at the temperature fired is, I believe, good cause for laying the blame for such odd occurrences to vertical wind currents rather than to light conditions.

Summing up: For long ranges, the only factor worth taking into consideration for the majority of shooters in setting their sights is temperature, and in a few cases, light. Each man must determine the effect of light for himself, but he will find that if he is influenced by light at all he can very probably follow this general rule: Any condition that makes the bullseye indistinct, regardless of cause, will probably make his shots go low. The majority of men can totally disregard light. There strated that light had far less effect on are some very rare and peculiar exceptions.

individuals varied more or less from their a heavy mirage at 600 yards, and bright target, I invariably had to come down about 1/2 minute from normal, but at 1000 yards the same light conditions had no effect upon my normal elevation for that

No external condition of any kind could be found to appreciably affect the point of aim at the short ranges for any man on the team. Weather conditions were best totally disregarded for rapid fire. It was simply a matter of determining the mean normal elevation and reducing the indeterminate errors to a minimum. These unpredictable variations from normal can only be reduced to a minimum by painstaking care of the gun, and development of correct habits of shooting. Many of the errors due to these causes have in my opinion been unjustly laid at the door of light for want of a better explanation. The Springfield rifle is a fine instrument but a delicate one. The importance of the proper stocking, adjustment and care of the rifle for consistent accurate shooting has not always been fully appreciated by even really expert riflemen-to their sorrow and confusion. That, however, is another story.

Note: (Practically all men from whose data the above conclusions were drawn used the snug six o'clock hold. Several men used the center hold and were among those who were not influenced by light under any conditions.)

HUNTING WILD TURKEYS

(Continued from page 17)

that has no resolving power when I come to train it on an old gobbler partially concealed in the thick top of a swamp pine 100 feet high and standing 200 yards away? Again, I find, as does Colonel Whelen, that the Hornet cartridge frequently changes its zero, and with even the best of mounts it is too much of a problem when using it to keep the hunting type of telescope properly adjusted for the finest accuracy-and turkey shooting requires such accuracy.

It should be clearly understood that for some types of turkey hunting the rifle is not adapted. It is useless for turkeys that are called up in thick brush, or for wing shots. But it affords more sport than the shotgun when you have to deal with turkeys that are feeding in fields, that are going to roost, or that cannot be brought within shotgun range for one reason or another.

My only wish is that as old age comes on me the wild gobbler will still continue to roam our mighty swamps and woodlands, and that my shooting eye will not be dimmed to such an extent as to prevent my enjoying the greatest sport this old

world has ever afforded.

TESTING HANDGUN AMMUNITION (Continued from page 14)

most had not been reached, I set about mounting the revolver in different ways. On one model the principle that the barrel should vibrate freely to obtain greatest accuracy was the controlling factor. The frame of the revolver was drilled and tapped on top of the part into which the barrel is screwed, and the revolver secured to the rifle barrel at two points of the frame only. But even though the

There are certain factors in regard to safety which should be observed when making or using a sub-machine rest. Muzzle blast is terrific. Cotton should by all means be used in the ears, which are very close to the muzzle, and to the gap between cylinder and barrel. Care must be exercised not to grip the rifle barrel ahead of the revolver. This would surely result in disaster. A far better way is to steady the stock near the shoulder. When firing prone or from a bench this will also make

even though the prone or from a bench this will also make

CONSTRUCTIONAL DETAILS OF THE SUB-MACHINE REST

same ammunition was used this method did not yield as good results.

On another model a base for mounting scope blocks was attached to the top of the revolver in the same manner as the revolver is attached to the rifle barrel in the illustration. The regular revolver stocks were removed and a rifle stock fitted. This can be done by simply drilling small holes through the metal straps sideways, where they will be covered by the regular revolver stocks. Even this can be eliminated by fastening the rifle stock with a clamping fixture. With the scope mounted in place this model gave very good results. The chief disadvantage was that the rifle stock interfered with proper squeezing of the trigger. This can be overcome by elaborating on the stock.

the shooter's position more comfortable.

When a revolver is held rigidly as when attached to a rifle barrel or rifle stock, much force can be exerted on it without its being realized. The cylinder should be grasped firmly when ejecting cartridges, to avoid straining the frame or knocking the revolver out of line with the sights. Springing or otherwise faultily mounting a handgun will ruin the gun, and perhaps the shooter as well. A cardboard liner should be used wherever two metal surfaces come into contact.

Full loads have been fired in the .38 Special mounted as shown without marring or injuring the arm in any respect. It might be advisable to use the rifle stock arrangement for testing extra heavy loads in guns with light frames, or for guns of larger caliber.

FRONT SIGHT ON SMALL GAME

(Continued from page 21)

I always try to hold the bead of the front sight on the spot I wish to strike, assuming, of course, the game is at such distance as the sights are set for." He then goes on to remark that "when shooting at small game it seems to me that the proper way is to hold the bead on the spot that is to be

struck and not at some imaginary place some distance below."

Wm. H. Janssen, from Illinois, says, "It has always been my method to hold the top of the bead, or post, on the exact spot I wish to hit." Yours truly meekly admits that if it had been his practice to hold 34 inch or so low, the family would have starved to death many moons ago. Fact is, I can't hit running game, large or small,

except by slapping the bead right on the spot. And by the way, holding the bead on small game is not so hard a task, or such an impossible one, as some would try to make us think. Use the smallest bead obtainable, and learn to appreciate rifle barrels 24 inches or more in length. C. S. Landis, one of the foremost small-game riflemen of America, uses this same method. "With iron sights," he says. "I sight the rifle to group as nearly as possible under the center of the front bead, and hold that bead on the animal so that the center of impact will-on squirrels-cut the front leg when crooked over the heart area." I never as a rule sight a rifle so that the front bead must be held low. It nearly always caused bad verticals." And if small-game shooting is your sport, don't fail to read ".22-Caliber Rifle Shooting" just given to us by Mr. Landis.

So there you are. Every single man mentioned is a good small-game shot. Some of them are admitted authorities on rifle shooting. A. W. Peterson, Col. Whelen and C. S. Landis all hold the front sight differently, and yet all three are among the best rifle shots of this country. From their letters it is apparent that some of the men mentioned as using the second method also use the third under certain circumstances. Mr. Longo, for example, uses both; while Dr. Miller uses the beadfull-on system when shooting at ranges beyond that for which his rifle is sighted. Several of the others do the same thing.

I agree with Mr. Landis when it comes to holding low in game shooting: I would rather hold high if I must hold off at all. Both of my boys were taught to hold the bead full on, and in their shooting of prairie dogs and small ground squirrels they seem to have no difficulty even with their light rifles and 1/16" ivory and gold beads. Years ago, when my eyes were good, I used a 3/32" ivory bead on a Savage 99 Model .303 with 22" barrel. I was using reloads on prairie dogs, and can't remember having had any trouble centering the bead on them.

All the men mentioned apparently use aperture rear sights. Several of them prefer plain square-top posts to the bead, Mr. Drew and Mr. Manly especially. Of course the ideal small-game sight is the scope. Mr. Landis and Col. Whelen use scopes almost exclusively for small-game shooting. I personally use a scope nearly all the time on the light rifles. All our present scope mounts, except the Western mount, carry the scope too high for comfort. Whenever the Western people can give us their outfit with an adjustable rear mount so that we can use our medium-priced scopes in it, then we will have something!

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I am under the impression that many small-game hunters are not at all sure just how they hold on game. Likewise, I am convinced that a great deal of over-shooting, especially on hurried shots, comes from having the rifle sighted to hit above the point of aim, and when the shooter in his hurry holds too high, the bullet is way over the mark. This to me is the biggest argument in favor of holding the front sight full on the spot to be hit.

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To sum it all up it appears that there are about two small game hunters who hold as does Colonel Whelen, to one who holds as does C. S. Landis. A vet smaller group hold well below the mark as does A. W. Peterson. And just between you and me, I question if a grey squirrel, prairie dog, or woodchuck, hit by a wellplaced bullet, would know, or give a dingdang, how the riflemen held. As I used often to tell the hired hands on the ranch years ago-"I don't care so much how you do it, so long as you get it done. It is results that count."

BEAR GUNS

(Continued from page 13)

"There's a dead buck!" was my thought, for Field is a dead shot; and I knew very well that if he had missed there would have been a chorus instead of a solo. He can work a lever, that lad!

So, scrambling up through the dense growth, I emerged, panting and winded, on the top of the ledges. At my shout Arthur let out a regular war whoop, and five minutes later we stood looking down at the glossy pelt of his bear. It was an old he, too! "I thought it was a cub when I first caught sight of it." Arthur told me. "All I could see was its head and about two feet of its body."

The bear had been flattened out in the sun on top of a warm rock, and it was perhaps 60 yards away when Field entered the picture, catwalking up the little gul-"When I fired it reared up at full length-and, Lord! It looked as big as a switch engine," he declared. To have shot at a cub and immediately found out that his target was about as large as a black bear ever gets, must have taken quite a "rise" out of friend Arthur. But his bullet had penetrated the brain, forestalling all further action on the part of

the bear. "Pat" Lynch, Maine's premier trapper, once had an experience with bears which shows what can happen in the way of excitement in a hunter's life. He was snowshoeing through a cedar swamp, carrying a double Ithaca loaded with No. 2 shot, his regular bobcat prescription. "There was about five feet o' snow," he told me. "I'd jes' walked onter a big blowdown, when it commenced to erupt bears frum beneath it. They come out in all directions." Pat managed to sock one of the five bears in the head with both barrels of

other four "lit outs there," and got safely away, a fact which Pat still mourns.

"If I'd had my old Savage I c'd hey piled up the whole dam' outfit," he declared. And very probably he'd have done just that, for he has devoted his entire life to hunting, and is one of the deadliest game shots the writer has ever known. He uses a .250 Savage, with the regular 87-grain bullets, and declares that it is big enough for anything that roams the woods.

That .250 is a mighty nice little gun, in either the bolt or lever-action models. It is heap good medicine for deer, especially when using the Western Cartridge Co.'s 100-grain hollow-pointed bullet, which is not so prone to go to bits when it hooks onto a small twig or limb. And it will kill bear! Plenty of men have demonstrated that beyond any question of doubt. Black bear, anyway. But it is not the gun I would deliberately choose for such work.

Ultra-high velocity has its good points, but coupled with too light a bullet it leaves something to be desired, as any real oldtimer will assure you. The mushrooming of the small bullet depends too much upon chance, anyway. If it happens to land squarely on the point of a game creature's shoulder, it opens up at once, and sometimes goes so completely to bits that the maximum effect is thereby lost, a wicked but superficial wound resulting. The 87grain bullet from the .250-3,000 sometimes will anchor a paunched deer in its tracks. Not always, however. I have seen several deer lost that were struck fairly amidships with this load, and they left very slight blood trails, compared to animals hit with heavier, slower bullets from the less modern rifles.

THE LEWIS CHRONOGRAPH

(Continued from page 11)

The points on the high-velocity chart are located in exactly the same way. They are found where:

Degree Line No.	Crosses	Velocity Line No.
31	44	699
30	44	720
29	et	744
28	4.6	768
27	44	799
26	4.6	830
25	4.6	864
24	61	900
23	44	940
22	84	985
21	44	1030
20	6.6	1080
19	4.6	1137
18	**	1200
17	44	1272
16	4.5	1350
15	66	1440
14	44	1550
13	44	1660
12	44	1800
11	44	1960
	**	2150
10	"	2400
9	44	2700

Mark these points and draw in the curve in the same manner as before.

To operate the chronograph, cut out two

14 inches in diameter, with holes in the centers to fit the motor shafts, and a second hole in each disc to receive the stud attached to the inner collar on the shaft. Fasten these discs securely in the machine. and turn on the current. When the motor has come up to normal speed, fire the test shot through both revolving discs, about 1/2 inch or so from the outer edges. The path of the bullet must lie in the same radial plane as the axis of the motor shaft, which can be most easily ensured by shooting directly over the top of the machine in the same vertical plane as the motor shaft (Fig. 1). In this case your "windage" will have to be exactly right, while slight variations in elevation will not matter.

Remove the discs from the machine, and measure the angle between the two bullet holes. Set out the value of this angle on the horizontal base line of whichever one of the two charts it applies to. It will fall on or very near one of the vertical lines. Follow this line upward until it intersects the curve on or near one of the horizontal lines, and follow this horizontal line to the left, and read off the velocity on the velocity scale. Where points fall between lines instead of exactly on them, correct values can be closely estimated by the eye.

A few notes regarding motors may prove useful. If you happen to have a 25-cycle split-phase motor with a speed of 1,450 r. p. m., and your electric current is 60 cycle, the connections of the pole pieces can be changed so as to give the motor a speed of about 3,600 r. p. m. Any electrician with a knowledge of motors will do this for a small price.

A motor with a speed as low as 1,800 r. p. m. can be used if the distance between discs is made exactly 24 inches, but a motor of this speed will not be as satisfactory as one running at 3,600 r. p. m., because of wobble after the bullet has pierced the discs.

It might be well in closing to call attene tion to the fact that the edge of a cardboard disc revolving at high speed will cut one's hand as if it were a buzz saw.

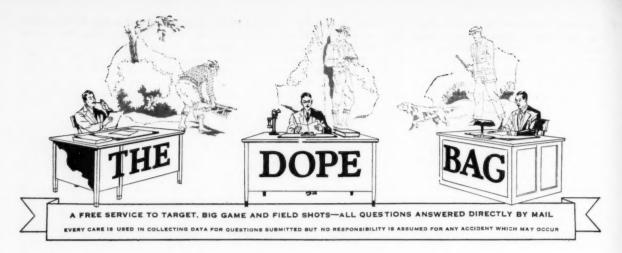
COMING EVENTS

The Fifth Annual Police Revolver Matches of the Northern Westchester Rifle and Pistol Club, Katonah, N. Y., will be held at Bedford Village, N. Y., on November 5.

The First Annual Kansas City (Mo.) Area Rifle and Pistol Matches will be conducted by the 110th Engineers (combat), Mo. N. G., over the 110th Engineers Military Country Club range near Rayton, Jackson County, on November 6.

NO TAX ON AMMUNITION COMPONENTS

The Director of Civilian Marksmanship reports that there is no tax on ammunition components under the his shotgun, nearly decapitating it. The discs of medium weight cardboard, 12 or new ruling of the Treasury Department.



Conducted by F. C. Ness

The .250 Savage Caliber Winchester

test. This model has been deservedly popular among hunter-riflemen in .30-'06 and .270 Winchester calibers, but this new rifle was bored and chambered for the .250 Savage cartridge. My friend, Swinson, gave me a standard factory cartridge which would not chamber in the very first of these rifles issued, but that earlier chambering fault has evidently been corrected, because that same cartridge now chambers perfectly.

The rather homely but fine-fitting N. R. A. Type stock of this nicely balanced Winchester has been thoroughly described in THE AMERICAN RIFLEMAN. Free circulars are also available. It is properly proportioned and its features are a very trim forestock and a very ugly but perfectly designed pistol grip. The comb is just right for the standard Lyman receiver sight but is a bit low for a hunting telescope sight. This gun is well adapted only for the auxiliary scope sight, either a small, light Zielklein scope in a high model, double lever, side mount for deer, or a target scope for woodchuck or coyote. Either auxiliary sight may be used without removing the Lyman 48 receiver sight from the bridge. The only exception is the new Noske scope with 6" eye relief, which can be mounted low and is adapted for use as an exclusive sight, as well as an auxiliary sight on this rifle.

The .250 Savage 100-grain expanding bullet at 2,800 f.-s. muzzle velocity is well adapted for eastern deer and bear shooting, as well as for woodchuck. It the shoulder at 250 yards when zeroed as

THE Model 54 Winchester N. R. A. will also prove satisfactory on western Type sporting rifle finally arrived for sheep and coyote, excepting at extremely long ranges. In an emergency it will also serve, at short range, for potting an eastern elk or a western caribou. It is not the caliber for moose or big bear of any kind, or for any game, small or large, beyond 250 yards.

For such game as deer the factory sights are best. The flat-faced gold bead is excellent and the receiver peep sight (with target disc removed) is both fast and accurate. Using these sights as issued and from hunting position, my groups with Savage non-corrosive ammunition ran as

25	yards	standing	3/4"	center	to	center
50	yards	sitting		center	to	center
100	yards	prone	21/2"	center	to	center
200	yards	prone	3 1/16"	center	to	center

This metallic sight shooting was verified at 200 yards eight days later with a 3.56" group. The 200-yard average obtained with the Noske scope for three groups was 3.04 inches.

At each range the group landed directly under the bead. The drop from 25 yards to 100 yards was negligible. Between 100 yards and 200 yards the drop was 4½ inches. Zeroed to hit where the top of the bead touches at 200 yards, the group would land 21/4 inches high at 100 yards and 4 inches low at 250 yards. This means that with this Savage 100-grain cartridge the top of the bead could be held on the middle of a buck's shoulder at 50 yards and 200 yards, at the bottom of the shoulder at 100 yards and at the top of

indicated. With a target scope focused at 100 yards and zeroed at 150 yards. crows could be killed up to 175 yards without any change in adjustment or hold. Woodchucks and coyotes, similarly, would be taken by zeroing a hunting scope at 200 yards and holding on neck or shoulder at any range up to 225 yards.

The .250 Savage caliber does not, of course, have the killing power of the .30-'06 or .270 Winchester. It is not recommended specifically for mule deer, sheep, bear, goat, caribou, elk or larger game. It does not have surplus power, even for eastern deer and black bear, but in the hands of the hunter-rifleman it will kill this game neatly, although the .30-'06 or .270 Winchester will stop driven deer on poorly-placed hits more quickly. The rural deer hunter stalks and pots this game very successfully with weaker cartridges, like the .25-35, but he does not find such cartridges equally effective when competition is keen and deer are excited.

The .250 Savage cartridge is in the same class as the .30-30 as to power, but its flatter trajectory and superior accuracy make it a more dependable deer rifle in inexpert hands, and adapt it for offseason varmint shooting when used in properly designed arms. In such arms the recoil is scarcely noticed and because the weight of gun and ammunition also is lighter, it is a fine boy's or lady's rifle.

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Cases do not stretch when fired in the Winchester bolt action and may be reloaded. Handloads broaden the field of the .250 Savage caliber sufficiently to encompass the sphere of every rifle cartridge from the .22 Long Rifle to the 7 mm., and that includes the .22 Short, the .22 W. R. F., the .22 W. C. F. Hornet, the .25 Stevens, the .25-20 Repeater, the .25-20 Single Shot, the .25-35, the .25 Remington, and the entire class of special deer calibers of which the .30-30 and .32 Winchester Special are representative.

The Winchester bolt action is superlatively strong, and it might be said this rifle has a supermargin of safety. The regular full-length receiver is retained and the magazine is shortened for the .250 Savage cartridge. Also the bolt stops forward of the bridge. The undesirable features of the 54 Winchester are the utilization of the sear as a bolt stop, the design and construction of the trigger guard and solid undetachable floor plate. and the left-hand safety which is turned on oppositely to all other Mauser type safeties and which is certain to confuse or fool anyone familiar with the conventional safety. Excepting in the case of the Noske scope, the angle of the bolt handle precludes a low position of any hunting scope.

The 24" barrel of this rifle has the same outside dimensions as the .30-caliber barrel in the same model. The barrel is heavy and large in proportion to the .25-caliber bore, which should ensure a constant zero as well as fine accuracy. The bore diameter is .250" and the grooves are .003" deep, the twist being one turn in 14 inches. This twist is too slow for the 117-grain .25-35 caliber bullet except when it is handloaded to maximum velocity, or between 2,600 and 2,700 f.-s.

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The rich, dull oil finish of the properly dimensioned and properly bedded stock, the deep-blued finish of the metal parts, the neat ramp front sight integral with the barrel, the sling swivels, the excellent military type trigger pull, the sight equipment, and the first-class accuracy (practically 1½ minutes of angle) all combine to meet every demand of the modern informed hunter. In fact only a rifleman can properly appreciate it.

The Griffin & Howe Krag Hornet

THE G. & H. single shot sporter (built on the customer's Krag action) has plenty of everything which makes up a desirable varmint rifle. The sample tried had plenty of weight (834 lbs.) for any varmint cartridge, plenty of forestock (17½ inches) and buttstock (1334 inches) length for the tallest and lankiest shooter, plenty of accuracy for small-game shooting, and plenty of sight and sling equipment for any shooting purpose. The buttstock (15%" x 2½" drop) was plenty straight for prone shooting and had plenty of pitch (3½ inches) for the roundest chest. It is also made in original Krag

caliber and in .22 H. P. Savage and .25-35 sight on a ramp, as well as two scope bases calibers.

It has plenty of beauty for any practical shooter, with imported walnut stock, plenty of nice checkering, horn tip, matted receiver and front sight ramp, bright bolt, neatly finished action, cheekpiece, steel buttplate $(5\%'' \times 11/2'')$ and grip cap, and deep blued finish throughout. The leather sling is of the 7%'' sporting type and is attached with detachable swivels of the quick-release type.

Most varmint shooting is done from the sitting or prone hunting positions. Those who prefer offhand shooting would want at least 1/4 inch more drop at the heel than that quoted, as measured from the metallic sight line. The forestock is large enough without being too clumsy for a sporting rifle and the pistol grip (31/2 inches from trigger) is close enough for small hands. and there is plenty of space between cocking knob and comb shoulder for large hands. The trigger pull is very good but would be better in this one were the receiver or sleeve built up to hold the bolt against the drag of the sear. The trigger is neatly checkered.

The face of the bolt is built up to fit and enclose the head of the Hornet cartridge. The Krag box magazine is gone, the right side of the action being enclosed by the stock the same as the left side. The normal magazine opening in the left side of the action has been filled so that the convenient single loading of the chamber is unattended by the annoyance of having an occasional Hornet cartridge slide into the magazine well. Except for the polish and attractive finish of the bolt the action is left as in the original Krag.

The 24" nickel steel barrel is 5% inch in diameter at the muzzle and 34 inch thick near the forestock. That is exactly 1/16 inch smaller than the Winchester barrel on one of my other Hornet rifles. but this one is as accurate. Judging from fired cases the G. & H. chamber is of standard size at the head but from .0045 to .007 inch smaller at the neck than those of my other rifles in this caliber. This is an advantage in reloading as no neck sizing is necessary and the cases are given a longer life as well. I find it necessary to resize the necks of fired cases from my other Hornet rifles and these necks give way after only one or two reloads. The G. & H. lead or throat is tighter than in my other rifles as my Hornet overall cartridge length of 1-25/32 inches is too long for the G. & H. chamber. This G. & H. rifle serves as a bullet puller for factory ammunition as it is impossible to extract a cartridge without leaving the bullet fast in the throat.

The rifle came fitted with the Lyman 48 receiver sight and a hooded gold bead

on the barrel designed to take both Lyman and Fecker mounts. A picture of this rifle appeared in the July AMERICAN RIFLEMAN on page 62. With the metallic sights at 50 yards we got an average 5shot group diameter of .916 inch, shooting two factory loads and a handload. With the No. 1 Malcolm scope (in Lyman mounts) the average was .658 inch per 5-shot group. Using the scope we fired 10-shot groups with three factory loads and two handloads and got a mean 10shot group diameter of 1.208 inches. The smallest 10-shot group measured (center to center) 0.937 inch. This was fired with This would have Savage ammunition. made an inside possible on the N. R. A. target had it been properly centered. It was impossible to adjust the Lyman mounts because the front block was about 1/32 inch too low. Even with the Lyman 48 slide removed and the scope tube in the bottom of the rear mount the center of impact was more than a foot above the point of aim at 50 yards. The scope bases were mounted with centers 5.5 inches apart. They should be spaced 6.86 or 71/2 inches. Very likely these few defections will have been discovered and corrected by the makers before this report is printed.

The Marble Game Getter

THE Marble Arms & Manufacturing Company submitted for examination a sample of the well-known Game Getter as it is now made.

The peep sight has disappeared from the top of the grip and the former Colt-like handle has given way to flat wooden grips, which are not nearly as attractive. The new folding skeleton shoulder stock is locked better than the former stock, but it is not as readily detached and it has an iniquitous habit of slipping on the shoulder just at the moment of discharge. The buttplate should be cross-grooved and lengthened to correct this fault. The new frame is shorter and the trigger is now more convenient to small hands.

The Marble Game Getter is the only combination gun of American manufacture. It is an over-and-under shotgun and rifle with a .22 Long Rifle caliber barrel on top and a .410-gauge smooth-bored barrel beneath. The 15" barrels are joined only at the breech and at the muzzle. They are unlocked by pulling back the trigger guard, when the gun breaks open like any shotgun. A combination folding open and peep sight is mounted on the extreme rear end of the barrel. There are two firing pins in the standing breech. The hammer nose is a hinged block which may be rocked up or down to fire either barrel at the shooter's will.

The .22-caliber barrel will give a good account of itself on small game up to 50 yards. Sitting we placed 10 shots in 2½ inches at 25 yards with Federal XL Excess Speed ammunition. At 50 yards from rest we fired 10 Palma Hi-Speed bullets into a 4½" group, 8 of them making a group of 2½ inches. The rear sight had to be shimmed up to get sufficient elevation at 15, 25 and 50 yards.

The smooth-bored barrel will handle ball loads accurately enough to hit the vitals of a deer with regularity up to 50 yards. In an emergency it would be legitimate to stalk a deer as close as possible and try to bag him (for badly needed camp meat) with one of the solid-ball loads. The lead balls weigh only 115 grains and develop less than 400 ft.-lbs. energy, but they are .425" in diameter and of blunt shape, so that they transmit considerable shock at 1,100 f.-s. muzzle velocity. The penetration in pine is equal to the .44 Russian and regular .45 Colt smokeless at the muzzle.

Using the Peters 2".410-gauge ball cartridge we got three out of five shots in a 35%" group at 50 yards from rest. Then, using the .44 W. C. F. Kleanbore ball cartridge, we obtained the following 5-shot groups: 15 yards, standing, $4\frac{1}{2}$ inches; 25 yards, sitting, $6 \times 6\frac{3}{4}$ inches, and $5\frac{1}{2}\times 7$ inches. The peep sight at maximum height seemed to give the right elevation for the shot and ball loads at all ranges up to 25 yards.

The .44 XL shot cartridge, holding a charge of No. 8 shot in an outside container, was noticeably inferior to the wadded and crimped .44 W. C. F. shot cartridge. Trade journals presenting an area of 9 x 12 inches were used as targets. The average for the .44 W. C. F. cartridge was 25 hits and 26 sheets penetration at 25 yards, which equaled the average performance of the .44 XL cartridge at 15 yards. Neither load would penetrate one side of a tin can at 12 yards. These may be considered small-game loads up to 15 yards.

The 2".410-gauge loads were more effective. At 25 yards the average result was 16 hits and 41 sheets penetration. The .410-gauge loads should be effective up to 25 yards on small game.

This is not a sporting arm, but, as the name implies, an extremely portable auxiliary gun for getting game. Within its limits it will be found very satisfactory for potting camp meat by trappers, guides or those big-game hunters who are not expert with a handgun and who do not carry a subload for their high-power rifles. With the stock folded it may be carried in its leather holster as conveniently and almost as unobtrusively as a handgun, and it may be snapped into action almost as quickly.

The stock has too much drop at the

comb to afford any helpful support, and the gun would be as effective without the stock when used in both hands as a peepsighted pistol with 12" barrels. It would then be quicker and even more portable. A second model with 18" barrels and a higher comb piece to afford a cheek rest would adapt the gun for snap shooting at flying targets or running game up to 25 yards. This shoulder-stock model should have the lower barrel chambered for standard $2\frac{1}{2}$ " .410-gauge loads. An improved stock would adapt the Game Getter for plinking games, like Duvrock.

An Opportunity for the Gunsmith Who Qualifies

ANY qualified gunsmith who is willing to change his residence should get into communication with Emmons Hawkins Hardware, Huntington, W. Va., or with Ogden Hardware, Ashland, Ky., or Central Hardware, Ironton, Ohio. This field, said to be practically virgin, covers choice country trade in portions of the three states, as well as several large towns and industrial centers.

The kind of gunsmith desired is one who can operate a repair shop for guns, as well as do custom stocking and remodeling of big-game rifles, relining, chambering and other barrel work, and repairing muzzle-loading rifles to serviceable condition.

The Owins Buttplate

7ARIOUS expedients are resorted to by shooters to keep their butt stocks from slipping on their shoulders. Rubber recoil pads mitigate the tendency of the butt to slip, and cross-grooved steel buttplates are still more effective in checking unwitting movements, principally in the vertical plane. Another advance in effectiveness is made by the deeply checkered or engraved steel plate. Most effective of all is the perforated steel plate, the shoulder pad or clothing sinking into the numerous perforations and holding the butt stock securely in its position. Some form of one or more of these methods is embodied in every homemade adaption.

Now the Owins Buttplate has appeared on the market for those who do not care to tinker. These are rubber buttplates moulded over steel so that they may be conveniently attached by means of the regular buttplate screws. They are very attractive, in black color, and, being only 3/16 inch thick, they do not materially change the stock length. At present they are available for the most popularly used target rifles, namely, the 52 Winchester and the M1, N. R. A. Type and Model T

Springfields, all of which have the Model 1922 stock. These Owins Buttplates are a positive ensurance against inadvertent movements of the butt stock. They could not be more effective or more convenient or neater. On the other hand they are more expensive than the homemade device and they are not as durable as the steel buttplate.

The New Idea Free Rifle Equipment

AN UNUSUALLY attractive set of free rifle equipment is made by Charles C. Johnson, Urbana, Ohio. It is light in weight and attractive in appearance, being made of polished aluminum.

The palm rest is a handsome piece of walnut, shaped somewhat on the order of a door knob, 23/4 inches wide by 13/4 inches deep. Imbedded in the top of this knob is a blued-steel bushing which is threaded on the 3/8-inch aluminum shank. The perpendicular adjustment is from 5 inches to 7 inches below the gun. This particular set is made for the 52 Winchester and the palm rest is hinged to an aluminum replica of the Winchester magazine. It is simply attached by removing the magazine and inserting the rest. It may be swung forward to a point 8 inches forward of the trigger and back to a point directly beneath the trigger. The hinge joint is provided with two natural stops for the extreme positions and with a friction lock for intermediate positions.

The base of the adjustable buttplate is held to the butt stock by two countersunk wood screws in the holes for the factory buttplate. This base is grooved for the movable member and the bottom of the groove is pierced with a series of holes for stops. There are eight holes allowing eight different drop adjustments.

The stop pin pierces the movable member which is the buttplate proper. This pin is on the end of a flat spring and a plunger projecting at the toe end controls it. This plunger protrudes when the stop pin is engaged in one of the stop holes. When it is disengaged the upper end of the stop pin projects through the buttplate. The total drop adjustment at the heel is 3 inches. The parts are very well fitted. The locking parts are made of steel.

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The buttplate is of the Schuetzen type with a prong at the toe to go under the armpit. The heel is broad, flat and curved to the rear to conform with the top of the shoulder. There is just enough of this prong effect at the heel to forestall any tendency of slipping and to give a feeling of security. This adjustable buttplate increases the length of the stock about 5% inch which moves the eye away from the receiver sight. The toe of the 52 Win-

chester stock is beveled off and this leaves a gap which can be avoided by cutting off the butt stock to fit the straight base plate. Because of the adjustable drop this buttplate can be used conveniently in prone and sitting positions, as well as in the standing position.

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Shotgun Choke

LEARNED the gunsmith trade when a boy, and am now 64 years old and about ready to retire. I have owned a shop, the largest in the Northwest, for the past 17 years, and my work has reached all classes of shooters. I was personally acquainted with Fred Kimbal, Budd, Dr. Carver, Troeh, Hughs of Iowa, as well as the present Frank Hughs, and many of the other great shots at trap, and also at game. I have read most all the trade journals, etc., for many years, so you see I have read both good and bad.

An interesting subject, and one that I shall write about here, is the choking of shotguns. Throwing aside figures, a choke is a great deal like a pop bottle-a contraction and a focus; the main bottle contraction being the choke, and the neck the focus. I have tried long contractions of every conceivable curve; short and long contractions, and have arrived at the conclusion that overchoking is a failure. The limit for any 12-gauge gun is .03 inch; and .02 inch properly focused, is better. It is not the amount of choke that concentrates the shot, but the focus of the muzzle. All the old guns were too short in the focus. I believe I am the original inventor of the farther-back choke and long focus as now used by all the gun factories. I tried to patent this, but failed.

I will now tell of some of my many experiments to determine the proper focuses. I stretched two fine steel wires that were fastened 3/4 of an inch apart at one end, and crossed them at a point 5 feet from the above point of attachment. I used these for gauge lines to grind my cutters for the focus, using a 30-power magnifying glass in all this fitting. I tested this focus out with 10 to 25 shots, for pattern and penetration. Then I tried it with the wires crossed at 6, 7, 8 feet, et cetera, and finally settled on 19 feet to cross as the I experimented with thousands of shots. I found that too short a focus will give a pattern with a very open center at over 40 yards. A shorter taper of focus will make an even pattern at 40 yards, but when shooting same 60 to 75 yards the shot is scattered over a very wide space, with very few pellets in the center of a 24-inch ring; while the longer focus (less taper) shoots thicker in the center at 40 yards, and will more than double the percentage at 65 yards. I have a Remington double that is larger than a dime in the

muzzle, and it has shot many patterns in about a 22-inch ring at 40 yards with Western Super-X No. 4 chilled, and has occasionally killed ducks at 75 yards, and as high as 90 yards with the left barrel. The right is modified for shorter range shooting. This sort of thing cannot be done regularly with any gun; and game hit at the regular distance at which most game is shot (30 to 35 yards) is not worth picking up when any very close-shooting gun is used. I mention that Remington as being "larger than a dime" at the muzzle, as that is the usual amateur method of measuring choke, when one is not acquainted with thousandths and ten-thousandths of an inch.

But just a minute. Any shotgun throwing an 80 per cent pattern at 40 yards is absolutely worthless at the trap or for game, for the reason that the pattern is so small at the ordinary ranges that no one can hit regularly. And then, again, game is usually killed at from 30 to 35 yards, and a lot at 25 yards; and if hit with such a dense pattern it is not worth picking up.

I am about 64 years old, and have associated with many of the best shots this country has produced. I am not writing this as an advertisement as I have plenty of work the year around. I just want you to know that it is possible to bore a shotgun so close that it is worthless, and hope this will settle the minds of some amateur shooters who want to make a rifle out of a shotgun.—G. W. Shrader.

Questions and Answers

OLD SPRINGFIELDS AND WEAK CASES

PRIENDS of mine want to attend some of the Sea Girt Matches but they have read about the new, stronger receiver placed on the Springfield rifles, and have an idea now that their rifles, which are somewhat under 800M, are no longer serviceable.

They have asked an opinion on this as to whether or not it will be safe for them to shoot the service ammunition in the matches. Of course, the thing for them to have done was to have had new receivers placed on the rifles instead of running around asking people such delicate questions concerning them.—W.C.N.

Answer: Springfield receivers of Rock Island manufacture numbered below 285,507, and of Springfield Armory make numbered below 800,000, were made before the new steel alloy and new heat treatment of modern receivers and bolts were adopted. These older receivers do not have as large a margin of safety. The modern receivers may be said to have a supermargin of safety.

The older receivers are safe to use with any standard factory ammunition of old or modern ballistics, providing the cases are in good condition, and the gun is in good condition. There should be no grease on the cartridge or in the bore, and the breech space must be no greater than about .005 inch.

Some of the older Springfield rifles have

breech space in excess of .006 inch, and should not be used. These older receivers should be checked up and corrected by competent gunsmiths. Where a competent service of this kind is not available, use .005 inch of shim metal on the head of a maximum size standard factory cartridge, and if the bolt will fully close, assume that the headspace is excessive. Commercial rifles can be corrected by R. F. Sedgley, Inc., 2311 North 16th Street, Philadelphia, Pa. D. C. M. rifles can be equipped with new receivers at the Armory.

It will be noted that greater care must be taken in using rifles equipped with the older receivers. Causes which tend to raise pressures unduly are not so serious in modern receivers with their supermargin of safety, as they well may be in the older receivers. Also because the older receivers are more brittle, they shatter more completely, and are therefore more dangerous when they do let go.

Outside of receiver and bolt strength there is the strength of the brass case itself to be considered. The case is the weak link which imposes definite limits on the absolute safety even of the strongest actions. When a primer is punctured or leaks, or when a case ruptures near the head, gas under high pressure is liberated, and escapes back into the action, usually blowing out the magazine downwards, but as often blowing particles of burning powder and metal back into the shooter's face.

In storage, "season cracking" develops in brass and sometimes old cases show seams or cracks, usually at the neck. This condition is common to old Service ammunition loaded prior to 1919. Cartridges cracked at the neck of the case will be somewhat inaccurate. When there is a sign of weakness anywhere behind the shoulder, that cartridge should not be fired. Fired cases of 1918 ammunition should not be reloaded with full pressure loads. The same holds true of fired cases of newer commercial ammunition originally primed with mercuric noncorrosive primers. It is wise to use nothing heavier than redweed loads in such cases

than reduced loads in such cases.

A weak case will let gas escape even when only a mid-range load is fired. If the gas comes back to the shooter's face, it can cause a serious eye injury, or loss of sight. Low-mounted hunting-scope sights tend to deflect the gas and they have saved many eyes from such accidents. Shooting glasses, goggles or spectacles are a better insurance. Some form of eye protection should always be worn, even when shooting the .22 rim fire. I have had reason to be thankful for that protection to my eyes in more than one instance.

25 A. C. P. VERSUS 41 SHORT R. F.

I WOULD like to know how the .41-caliber Remington double Derringer Model '95 compares with the .25 Colt automatic pistol, for personal protection?—H.C.

Answer: Both the Remington Derringer and the Colt Vest Pocket pistol are compact, reliable well-made arms. This automatic pistol served to displace the Derringer as a "surprise" gun because of its greater number of shots. You will note from the comparative ballistics that the .25 Colt develops more energy and gives greater penetration. However, the larger lead-bullet of the .41 Short gives greater shock power than the small hard bullet of the .25 A. C. P.

Gun Bbl. Bullet M.V. M.E. Penetration .25 Colt 2 inch 50 gr.745 f.-s. 62 f.-s. 4 boards .41 R.R. 3 inch 130 gr. 410 f.-s. 49 f.-s 2 boards

MORE DOPE ON RIFLE CANT

IN THE September issue of THE RIFLEMAN, I noted an inquiry as to the effect of canting a rifle on the placing of the bullet.

In your reply you state that for a range where an elevation of 3 minutes is needed to zero the rifle, if the rifle were canted 45 degrees to the right of vertical the point of impact would be shifted 11/2 minutes to the right and would be 11/2 minutes low. This appears to be an error and would tend to mislead your correspondent.

Stated as a formula for those who remember their trigonometry, it is as follows:

Let M—the vertical angle in minutes required to zero rifle, (3°).

Let A—the angle of cant from the vertical, (45°).

Let H—horizontal deviation due to cant, in minutes, (2.12'). rtical deviation due to cant, in minutes, Let V=vertical

Then $H = M \times sine^*$ of A; and V = M -(M x cosine* of A).

It will be noticed that for any ordinary angle of cant, the vertical deviation will be very small, and the horizontal deviation is of little importance except for extremely long ranges. It is of more importance with low velocities, requiring larger angles of elevation.

Back in the days when shooting at 1,000 yards was done with the .45-70-500 or with the heavier .45-120-550, the time of flight must have been on the order of 3 seconds, which would require an angle of elevation of around 172 minutes. In such a case an angle of cant of only 2 degrees from the vertical would give a horizontal deviation of nearly 6 minutes. At 1,000 yards this would amount to about 60 inches, putting the point of impact nearly off of the target. No wonder that the target rifles of that day were provided with spirit levels on the front sights

With the increasing interest in small-bore shooting at 300 yards, more attention will have to be paid to canting if one wishes to make high scores. Without knowledge of the time of flight of the .22 long-rifle cartridge over this range, I would say that it cannot be far from 1 second, perhaps more. Assuming it to be 1 second, this time would call for an angle of elevation of about 64 minutes to zero. A cant of 2 degrees will give a horizontal deviation of 2.2 minutes, which amounts to 6.6 inches at 300 yards. Now a 2-degree cant, or what amounts to the same thing, a variation from his normal hold of 2 degrees, is one that he may easily make if not careful. It is apparent therefore that the long-range small-bore shooter must exercise vigilance in this matter.

While it is more than likely that there is nothing in the foregoing that is new to you, or to many others of the shooting fraternity, it seems to me that there are many shooters to whom this matter of the effect of canting is not so well known. Would it not be well, therefore, to give it fuller explanation to the end that the shooter may know when and how it becomes important, and when it may safely be ignored?—C.P.M.

my reply was only approximately correct, and that it would be misleading if left with-out further explanation. The "3 minutes of angle to zero" referred to a six o'clock aim as opposed to a center aim in the 6" black. Even so, a 45° cant on the 3" radius would cause a far greater lateral deviation than a vertical deviation. My conclusions were correct for a bullet drop of 11/2 inches and a right angle cant of 90 degrees.

The reason, of course, is that at the start of the arc described by the sight in canting the rifle, the curve moves to the side more rapidly than downwards until it reaches the 90 degrees, or midway angle, where the two directions are even. Beyond 45 degrees the vertical deviation increases as the bullet drop increases, until at 90 degrees, or a right-angle total drop of the bullet for the range used.

My hypothetical example was not a practical one because any cant greater than 5 degrees would be obvious and immediately corrected. For any practical cant, then, the deviation which results is almost entirely horizontal. The radius of the circle described is equal to the total drop of the bullet. drop at 100 yards of the regular .22 longrifle bullet at 1070 f.-s. is about 26 inches, and the angle of elevation about 17 minutes. This would make the lateral deviation quite serious even with a cant as small as 2 degrees. You will note it is also serious enough to warrant careful consideration when shooting our modern high-velocity small-bore ammunition, from the following table, given for Palma Hi-Speed at 1275 f.-s. muzzle velocity:

Drop (inches) Trajectory (mid-Range) (inches)	3.3	200 yards 60.4 15.1 26.1	300 yards 152.8 38.2 43.0
Angle of Elevation (minutes)	11.5	20.1	43.0

At 100 yards the elevation accounts for 12.04 inches and the muzzle flip and distance from sight to bore axis accounts for 1.16 inches of the total drop. If the elevation is increased 3 minutes of angle for a six o'clock hold, this must be added to the drop (13.20 minutes), making the radius of cant 16.34

The angle of elevation required for the 500grain .45-70 Springfield bullet which you mention is 178.16 minutes at 1,000 yards.

SHOTGUN GAUGES COMPARED

MY GAME shooting consists of rabbits (both cottontails and large gray mountain rabbits), quail, grouse, and pheasants. also shoot crows, hawks, and other vermin. We also have a few ducks when they are migrating. Would you prefer a 16 or a 20 for this type of shooting? For the vermin and duck shooting near home, I generally use a 10 or 12 gauge.

I would like to have some straight done on the effectiveness of the 20 as compared to the 16. After reading some 500 yards of shotgun dope, I am still in the dark in regard to this. However, I write a little, also, and I know the limitations which must be placed on a statement made to the general public.

How much difference is there between a mediocre 16 and a good 20? (Effective range on game mentioned above.) By the 16, I mean the average 16, for which the owner buys a "box of shells." The 20, of course, using the long range load and shot size which seem fitted to it. Super X, or Peters Hi-Velocity, etc. Considering also two barrels for each gun; improved cylinder and full choke. How much actual difference (in effective range) is there between the 16 and the

20 when both are used under the same conditions?-W.C.K.

Answer: I made a series of experiments once to learn the actual difference in range between a full-choked 16, using 11/8 ounces of and a 20, using 1 ounce of the same shot. Picking a pattern that was dense enough to kill, I found that when making this pattern the 20-ga, wouldn't go back beyond 45 yards. while the 16 went back to between 48 and 49 yards. The 12-ga. with the 16 bore shot charge went back to 51 yards. I take it that this difference will hold with other degrees of choke, as improved cylinder or modified. Of course the required density, other than full choke for each gun, can be made up, if you are willing to tolerate a bit narrower pattern. For example, a full cylinder 12 covers 27 inches at 20 yards, ordinary chilled shot, an im-proved cylinder 16 shoots a like density of pattern, covering a 24-inch circle at 20 yards. a 50% 20-ga., quarter choke, covers a 20 to 22-inch circle, and the density is the same as the 16 improved cylinder. Now in quail or grouse shooting, the question is whether or not you are willing to tolerate the narrower pattern, and if not are you willing to tolerate a lessened range.

The openest 20 bore that would satisfy me would be a 50% choke, but that might not apply to you; your shooting might be at shorter range, or you might be quicker on the mark. In that case an improved cylinder 20 would be quite satisfactory, though in my opinion an improved cylinder 16 is the better gun. I'd say from experience that an improved cylinder 20-ga. ought not to be tried on quail beyond 30 yards, an improved cylinder 16, using 11/8 ounces of shot, should kill at from 32 to 33 yards, and a like boring in the 12 with 11/4 ounces of shot, at 35 yards, still on quail or doves, either-grouse the same.

LEAD BULLETS IN THE .45 A. C. P.

AS A member of the National Rifle Asso-ciation and one of the proverbial guncranks, I would greatly appreciate a little information.

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Can the .45 Colt Automatic cartridge, 230grain bullet, be satisfactorily loaded to give a muzzle velocity of 900 f. s. or over If the point of the bullet was flattened like the .45 Colt revolver bullet, woud it function in the mechanism without jamming, and, if so, would it not give a shocking effect similar to the .45 Colt cartridge? How about a bullet similar in shape to the .45 Webley Automatic, or the old .41 Colt cartridge, frequently referred to as a "man stopper"? Would such a bullet function properly, and would it not have a greater shocking effect than the regular pointed bullet?

Can the .45 Colt cartridge, 250 or 255-grain bullet, be satisfactorily loaded with smokeless powder to equal the ballistics of the 40-grain black-powder load; namely, muzzle velocity 910 f. s., muzzle energy 450 ft. lbs.?

Considering the increasing popularity of the .45 Colt Automatic pistol, I have won-dered why the ammunition manufacturers do not develop for this weapon a cartridge with a higher velocity, or a different shaped bullet that would equal the shocking power of any hand-fire arm.—M.C.R.

Answer: In the .45 Colt pistol the 200-grain jacketed bullet can be given 905 f. s. muzzle velocity with the recommended maximum charge of 6.6 grains weight Pistol Powder No. 5. The maximum charge recommended for the 230-grain bullet is 5.4 grains weight, which gives only 800 f. s., or about

Answer: Thank you for your mathematical dope on rifle cant. I must admit that Note: The sine of the angle is the ratio of the side opposite the angle to the radius of the circle. The cosine is the sine of the complement angle which completes the quadrant of the circle, or (90°) right angle. In the case of a 45° cant the quadrant is exactly bisected or evenly divided and both angles are equal. Both the sine and cosine of a 45° angle are therefore equal, and the figure or value is .70711.—F.C.N.

the standard velocity. In this pistol lead alloy bullets can be used if they are cast fairly hard, or at least 1 to 10, and also if they have the conventional shape of nose. In some pistols a round-nose bullet functions very reliably, but it would be impractical to use a square nose or wad-cutter type of bullet unless rather frequent jams would be immaterial. The regular .45 pistol bullet is rather blunt and gives very good shocking-effect, and this is materially increased by a lead alloy bullet with its rougher and softer surface.

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In the .45 Colt revolver the standard 250-grain lead bullet can be given 925 f. s. muzzle velocity with 8.5 grains weight of Pistol Powder No. 5 or 15.0 grains weight of Sporting Rifle Powder No. 80. The powder charges should be carefully weighed to 1/10 grain in accuracy and the bullet never seated deeper than to make an overall length of 1.58".

FRONT SIGHTS FOR TARGET AND GAME

I AM led to believe there is no such animal as an every-purpose front rifle sight, therefore would appreciate your recommendations for the best all-around front rifle sight for hunting, and the best all-around front rifle sight for target shooting. Assuming that you may recommend a bead sight for hunting, please indicate whether ivory, gold, or other metal, the preferable diameter of the bead, and whether with a flat face or convex surface. If flat face is recommended, indicate suitable angularity with reference to the rifle barrel.

Assuming that you may recommend either a rectangular post or aperture front sight for target shooting, please indicate suitable thickness of the post, if that is your choice, or aperture diameter, if you prefer that type of sight, suitable for a Springfield rifle and a Model 52 Winchester rifle.—C.C.H.

Answer: The Watson No. 2 Target sight, with removable hood and interchangeable discs, is the only combination hunting and target match sight. Post or aperture with hood makes it the finest kind of match sight. Gold beads with hood removed make it a fine hunting sight. It is the best dual-purpose front sight on the 52 Winchester.

The aperture may be from .100 to .139 inches in diameter, depending on individual vision. The square top helde or nost should

The aperture may be from .100 to .139 inches in diameter, depending on individual vision. The square-top blade or post should be flat faced and blackened, but preferably in silhouette under a hood. The width can be from .050 to .110 inches. The average shooter will perhaps select .065 or .085-inch widths. It depends on personal choice and eyesight, as well as barrel length. On short barrels I want at least .065 inch and up to .110 inch on 30" barrels. I also prefer large

The gold bead should be flat faced and 1/16 to 3/32-inch diameter, depending on personal choice. White enamel or ivory are more quickly seen, except against snow. Being brittle, they are, however, less durable than gold. Also, the Watson gold beads are sloped back at a slight angle to catch the light from the sky which makes them stand out distinctly against most backgrounds in every light, except in dense woods which exclude the light from above. When the bead is perpendicular, white or red color is more quickly and distinctly seen than gold under most conditions.

For .30-caliber sporting rifles the Watson No. 2 Target sight is not as strong as most of the popular ramp sights attached with barrel bands. Of barrel-band ramp sights the Pa-

cific sight comes nearest to being a combination hunting and target sight because the square-top target blade has a gold tip which shows up prominently and distinctly when the hoad is removed.

the hood is removed.

Other makes would be equally versatile in purpose if the makers would supply goldtip square-top blades with hoods to be used over this hunting blade on the target range. The King Triple Bead arranged in a ramp base and fitted with a white bead, a flat-faced gold bead and a square-top post about .085 inch wide would be very useful and desirable, especially if a hood is also provided for range use. The Western ramp sight fitted with a gold-tip square-top blade .065 inch wide would be good, and may suit some shooters better than the Pacific blade, which is only .050 inch wide.

For target shooting alone on your 52 Winchester the Lyman 17-A front sight with its seven hooded inserts, including two posts and five apertures, is as good as any sight available.

For hunting purposes alone on your Springfield the King red bead ramp sight with its chromium mirror to illuminate the distinctly colored bead is as good as any sight available, and it is very conveniently attached to the fixed stud of the Springfield front sight.

.32-20-CALIBER REVOLVER

THE first revolver I ever owned is the S. & W. Military 32-20, which I now have. I can now see that I should not have bought a gun that gave as poor a performance as the 32-20. However, I can't afford to buy a new gun now; but expect to later on. In the meantime, why can't I empty out the powder and measure a lighter load and insert the bullet again? This would give me a reduced load for 25 or 50 yards practice. I can buy these cartridges new for 1½ cents each. I believe this is cheaper than to reload the shells entirely, including new cases, primers, powder, lead and more complete reloading tools. What tools would be needed to insert the bullet in the new cartridge?—P.E.H.

Answer: The same reloading tools would be needed for breaking down your .32-20 ammunition and assembling it as would be required for handloading. Get the B. & M. Model 26 bullet puller for the .32-20 at \$6.75 and a bullet seater at \$2.50, plus a charge cup at 50 cents. It would be better to get the Model 26 reloading tool and bullet seater and reload the fired cases. I found the S. & W. .32-20-caliber "Winchester" Model very satisfactory afield with 8.0 grains weight No. 80 behind the 100-grain and 115-grain lead bullets. For target work I used 2.3 grains Bullseye and the B. & M. wad-cutter target bullet or the 100-grain lead bullet loaded point first. The Winchester 100-grain low-pressure lead bullet factory ammunition does very well in the .32-20 revolver.

In reloading, primers would cost 40 cents per 100, bullets, 73 cents per 100: and powder, 6 to 25 cents per 100. Mattern says 32-20 cartridges can be reloaded for \$1.43 per 100, even when paying 85 cents for 100 factory lead bullets.

DEER GUNS COMPARED

WHICH would be the best deer and bear gun (western Pennsylvania), the Model 54 Winchester, .270 caliber; the Model 99-G Savage, .300 caliber; or the Model 94 Winchester, .32 special caliber. What loads would be advisable?

I have an old U. S. model 1879 single shot rifle (.45 caliber). Where may I purchase cartridges for the same?—R.F.P.

Answer: Figured on speed, power, range, trajectory, etc., or general effectiveness, the 270 Winchester is the best deer gun anywhere. In western Pennsylvania the Model 99 R. S. Savage lever action will serve very well in .250 Savage or .300 Savage caliber. It is fully equipped as to sights and shooting sling and the stock is as well proportioned as that on the N. R. A. Type Model 54 Winchester. The ranges will rarely exceed 200 yards and then not by very much. The .250 Savage is the better caliber beyond 175 yards. These two rifles may be far more satisfactory for the purpose in the hands of a left-handed rifleman who has not learned to handle the bolt action with proficiency. The Model 1894 Winchester lever action is not properly stocked, and cannot be aimed as effectively. In power the .32 Winchester Special is in the general class of the .30-30 caliber, and when equipped with a peep sight it will be effective up to 150 yards.

iber, and when equipped with a peep sight it will be effective up to 150 yards.

The 130-grain cartridge should be used in the .270 Winchester. The 180-grain S_P. load should be used in the .300 Savage and the 100-grain 2,800 f.-s. cartridge in the .250 Savage. The 165-grain or 170-grain S.-P. bullet should be used in the .32 Winchester special caliber.

The Model 1873-1884 .45-caliber Springfield single shot rifle in the .45-70 caliber, will handle any of the lead bullet, black-powder or low-pressure smokeless loads safely. It is not adapted to the high-velocity or highpower loads in this caliber. The best ammunition to use in this weapon would be the lead bullet cartridge, and I would particularly suggest the Peters cartridge with lead bullet and semismokeless powder.

LEAD BULLETS FOR THE 9-MM. LUGER

WILL you kindly advise if I can reload 9-mm. Luger cartridges either in full or target loads with plain lead bullets?—B.F.H.

Answer: The 9-mm. Luger pistol case can be reloaded with jacketed factory bullets or home-made alloy bullets by using the Ideal No. 10 reloading tool. It will also be necessary to reduce the body of any case which has been fired with a full load by using the Ideal full-length shell resizer. When new cases are used and only light target loads are fired, the full-length shell resizing may be omitted.

full-length shell resizing may be omitted.

For full loads which will function the automatic mechanism Ideal bullet No. 356402 may be used, if cast hard. It should have a temper of at least 1 part tin to 10 parts lead. The normal weight of this bullet is 123 grains. A charge of 5.0 grains weight Pistol Powder No. 5 behind this bullet should work the Luger loading mechanism quite reliably. The charge could probably be increased up to 5.5 grains weight, if necessary. The velocity with the 5.0 grains weight charge will probably develop 1,050 f.-s. and it should be very accurate.

For target work, using the arm as a single shot weapon, the charge can be reduced to 3.4 or 4.0 grains weight. For this single loading purpose I believe Ideal bullet No. 360344, weighing 112 grains, would make a fine short-range target load with 3.0 grains weight Hercules Bullseye powder.

NOVEMBER, 1932



The Arms Chest is an open market trading post where manufacturers, distributors, purveyors of professional services, and our own readers may cry their wares to fellow sportsmen at a modest cost. Returns are uniformly excellent—scores of advertisers have reported truly phenomenal results.

Advertisements for The Members Exehange are accepted from members only, for their individual and personal transactions exclusively, at 7¢ per word, minimum charge \$1.00. All dealer advertisements are grouped under The Trading Post, the rate for which is 9¢ per word, minimum charge \$1.50. Groups of words and figures are computed as one word. No box number or blind ads accepted. All advertisements must be accompanied by cash or they will be disregarded. Final 'closing date is the 10th of the preceding month. Please print all advertisements plainly—we cannot be responsible for errors due to illegible writing.

THE MEMBERS EXCHANGE

For N. R. A. members only, for their individual and personal transactions. This section provides a quick, inexpensive means for disposing of guns and accessories no longer needed, or for the purchase of more suitable similar items. We urgently request that a full description be given of every article offered, and its condition, for transactions of this sort must be based entirely on good faith and mutual satisfaction. Deliberate misrepresentation will of course result in immediate expulsion from N. R. A. membership.

FOR SALE

SPRINGFIELD 30-06 sporting stock checkered pistol grip and forearm. Pacific peep sight rear, front original. Weight 7½ lbs. Perfect condition, Canwas case, first P. O. M. for \$35 takes it. P. A. Barr, 340 Main St. New Martinsville, W. Va.

POPE 38 SPECIAL Barrel eight inches long threaded for standard S&W revolver. Never fired, blue with sight. Best cash offer. Fairbanks 334 scales perfect chromium plated \$12. R. E. Van Syckel, 30 Glencoe Road Upper Darby, Penna. 11-32

WINCHESTER model 21, 12, Lyman sights, D&W recoil, \$45. Winchester 57, 22 L.R. Zeiss scope, mounted by Western Sight Co. \$50. These guns are as new. L. O. Mesnard, Boone, Iowa. 11-32

SAVAGE TAKEDOWN, new condition, 300 cal. checkered grip and Lyman micrometer sight. First money order for \$25. Harry E. Stone, R.D. 1. Phoenixville, Penna.

WINCHESTER 92 solid frame full magazine 32-20 with Lyman No. 3 front, No. 6 rear, and No. 103 micrometer tang sights. New and excellent condition. Also 50 Kleanbores. \$28.50. R. H. Goldamith, 44 West 77, New York City. 11-32

WINCHESTER 25-35 Model 55 takedown, fired 20 times \$20. Also 30-40 Krag and German Luger. R. N. Longsworth, Somerset, Ky. 11-32

WINCHESTER 32 Special, Model 1894 Sporter, takedown, 22-inch barrel, fine condition \$26. Winchester 22, Model 1906, new \$12. Edward Bodewin Medford, Wisc. WINCHESTER 52, latest model, 48J and 17A 835. Service Springfield \$20; Zeiss binoculars. 8x30 \$50. All above as new. John Skinkle, Samborn St., Lowell, Mass.

BEAUTIFUL 22 Winchester Hornet Martini, will guarantee 1½-inch groups at 100 yards, price \$100 Send stamp for complete description. Lawrence Nuesslein, 934 N. 30th St., Allentown, Penna. 11-32

Several Single Shot Hornets, \$20. up. 38-55 Remington Hepburn, new. Might use mechanics tools in exchange. J. R. Buhmiller, Eureka, Mont. 11-32

NEW, never used 78x84 Woods 3-Star sleeping bag; moth proofed, few water stains along edge caused by moth proofing process, cost \$60, take \$40, 38-40 Bisley 5½-inch perfect, new barrel and cylinder \$40; Colt 38 Super automatic perfect, Heiser holster, shot 15 times \$30. Money orders only. Gordon Mayes, 9851 Yoakum Drive Beverly Hills, Calif. 11-32

5A SCOPE fine condition; will sell for \$20, bargain. Jack Carr, 190 S. E. 12th Ter. Miami Florida. 11-32

EXCELLENT 45 COLT U. S. Army Automatic pistol, model of 1911 \$16; 10 Guage Winchester, Model of 1901, 32 full extra fine condition, Hawkins recoil pad \$35; Prewar Lugers in factory condition: extra fine Bisleys. D. B. Conley, Swampton, Ky.

1912 Winchester Trap, beavertail foreend, ventilated rib, pad, restocked by V.L.&A. 14x2x1½ \$60; Fine 52 Winchester speed lock and 8X Fecker Scope \$70; Fair Marlin 39 Lever 22 \$7; Fine 22 Webley Air Rifle \$10; Fine 1890 Winchester 22 W.R.F. \$10; Fine 5tevens 12 single trap 32, ejector, pad \$10 Fred W. Jay, 457 Fillmore, Gary, Ind.

L. C. SMITH Field, 12 ga. 2 set barrel, 26 and 30, very fine \$35. 12 guage Remington auto. 30-inch used condition \$25. D. C. McLaughlin, Cannonsville, N. Y.

ARMS AND THE MAN, American Risteman 1923 to 1927 \$6.75 per year. 1927 to 1930 \$4 per year. John Pohlman, Ferguson, Missouri. 11-32

SAVAGE 22 Sporter, checked, Lyman sights \$12.50; Winchester 30-30 half magazine \$9; Colt 38 Military automatic \$12.50; Remington 32 automatic \$9; Commercial 1917 Smith & Wesson 45 \$11.50 Colt 25 automatic, sitckeled, pearl handles \$11 Colt 380 automatic \$10; Colt Single Action 44-40, barrel 434-inch \$11.50. Oran Delaney, Greenville, Texas. 11-32

SALE ONLY—Winchester 54, .30 Govt. 1906 rifle N.R.A. type stock; Lyman 48 receiver; sling swivels; case; ammunition, brand new, cost \$75, Take \$55. No trades. Sidney Morris, 71 Newton Ave, Jamestown, N. Y.

2000 WARTIME 30-06 \$10 per 1000; 1300 empties, 20¢ per 100; 5\(\frac{x}{2}\) Pyro, best offer. Winchester 95 30-06, details for stamp, J. M. Hughes, Brookston. Ind.

7M/M G&H rifle, Circassian walnut stock, Hensoldt 234X scope in Noste mount. Beautifully engraved, targeted by Col. Whelen; cost \$325. Sell for \$150. Perfect condition. N. F. Harriman, Room 5026, Interior Dept., Washington, D. C. 11-32

.22 SHORT REMINGTON Automatic, man size stock, beaver tail forearm, beautiful dark oil finish nicely checked; Western receiver rear sight, Western gold bead front, perfect; for K-22, Hornet 23D, 52 Winchester, Mirakel Daylux. Clyde Strickling, West Union, W. Va. 11-32

SMITH TRAP GRADE Twelve featherweight e'ector, single trigger; Smith Specialty Grade trap single, ventilated rib, beavertail; both A-1 condition; price reasonable. Charles Gardiner, 39-20 220th. Bayside, N. Y.

S&W "STRAIGHTLINE", like new, special grips. Call sight, walnut case \$24. Winchester 54, carbine 30-30 crank condition, Western receiver sight. Heiser scabbard \$28: Colts "Shooting Master" crank condition, bluing slightly worn "Myers" quick draw holster \$32. Joe P. Medinger, Las Cruces, N. Mex. 11-32

24-INCH KRAG fine \$10; Stevens 44½ Hornet, high comb stock, scope blocks excellent \$25; Smith Field 32-inch full, long range, Jostam pad, perfect \$30. McCormick, Box 883, Lake Worth, Fla. 11-32

SAVAGE COMBINATION Kit. 300 1899G rifle, 410 shotgun barrel, velvet lined case, Marble rod. New, almost perfect \$25. No trades. \$4.00 M.O. balance C.O.D. M. R. Horton, R.R.3, Fair Grove, Mo

500—1918, 30-06 Cartridges \$7.50. C. Baehr. 9509 Willard Ave., Cleveland, Ohio. 11-32

CAP AND BALL Rifles and shotguns \$4 to \$10; Leaman rifle included, for description write. Sharps Old Reliable \$4.50. Max Fox Jr., 621 Hebrank St., Lancaster, Penna.

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If you want to sell—or buy—shooting or hunting accessories of any sort, an ad in the next issue of THE RIFLE-MAN will produce immediate results for you. December issue closes November 10. See instructions above.

THE AMERICAN RIFLEMAN

New STEVENS

"Walnut Hill" Target Rifles

The expert marksman of today demands not only a rifle of extreme accuracy, but insists on the best sighting equipment, a stock and forearm of approved design, and a perfectly balanced arm that is completely equipped. Such a rifle is the new Stevens "WALNUT HILL" No. 417-1, which will appeal to shooters of both the new and old schools.

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This new model is built on the improved "Ideal" drop lever action, with very short hammer fall, safety notch on hammer, new style lever which cocks the hammer, smooth trigger pull, and heavy barrel fitted with blocks for Lyman or Fecker telescope sights. Lyman No. 17A and No. 48L sights are regular equipment. Weight of rifle complete about 10½ pounds. Each rifle is put through a rigid shooting test and is guaranteed for accuracy.

The design of the stock and forearm has been approved by the National Rifle Association as well as by many of the leading rifle authorities. The stock is about 131/4" in length, with drop of 1-%" at heel and 1-%" at comb. The comb is thick and is located well forward which is particularly desirable

when shooting in the prone position. The shape of the stock permits comfortable "holding" in all shooting positions. The forearm is of the wide beaver-tail type, designed to afford a perfect grip. Equipped with a Government style of sling strap, treated with Neatsfoot oil, making it soft and pliable.

Our watch-word is "Accuracy." Let us prove it to you with this new Stevens "WALNUT HILL" No. 417-1.

Model No. 417-1, as above, \$47.75. Model No. 417-2, with Lyman No. 17A and No. 144 tang peep sight, \$42.75. Model No. 417-3, without front or rear sights, \$37.50.

These rifles are recommended by the National Rifle Association and all bear the Stevens guarantee of accuracy.

The No. 144 Lyman tang peep sight with click adjustment for elevation and windage was designed exclusively for these "WALNUT HILL" rifles.

An illustrated circular giving complete description of our entire line of "Walnut Hill" Senior and Junior target and sporting rifles will be mailed you promptly upon request.

The J. STEVENS ARMS COMPANY, CHICOPEE FALLS MASSACHUSETTS

Owned and Operated by SAVAGE ARMS CORPORATION, Utica, N. Y.

BARGAINS: Two Remington 17: extra barrel. Remington 29-A, 12; Savage 28-A; Stevens "Browning" 16; Two '410 doubles; Ithaca "Field" 10 Hilbertology: Two Parker Single traps; Niedner "Baby"; Custom Ballards 22; 25-20; 32-40; Stevens-Peterson 22; Newly cut 33 "Kentucky"; Winchester "Horat" components 100; primed cases \$1.85; bullets 80c; primers \$3.50. "Modern Shotguns" \$2.75; Custom Springfields; Sedgley '7m', Winchester 54 NRA; revolvers; buttplates; stocks; barrels; sights; tools; "Kentucky" parts: Send stamps for six pages details. Claude Roderick, Monett, Missouri. 11-32

TWO BARRELS for Colt 38 Officers Model 6-inch fine \$2.50; 7½-inch as new \$3.50; Ideal reloading tools 38 and 30-40 23 with neck dies \$5 each. American Riffe, Whelen \$3; Pistols & Revolvers. Hatcher \$2: WANT—New Krag Barrel. Edwin Rachel, 7850 Constance Ave., Chicago, Ill. 11-32

.22 Colts Police Positive revolver 6-inch barrel, very fine condition \$17.50; Collection of 10 revolvers suitable for decorators or repair parts \$10. Jesse Gower, 353 Queen Ave., Hoquiam, Wash. 11-32

WINCHESTER 54 30-06 regular stock, 48 sight, fitted with Fecker blocks, good used condition \$25. Marlin R. Kemmerer, 620 Cleveland St., Allentown. Penna. 11-32

OLD 45 COLT Six Shooter stamped U. S. Has th Diagonal cylinder pin screw and solid wood handle. Fine condition \$16. 38-40 Colt Lightning rife good \$11. Fancy 10 ga. Colt double 32-inch Damascus barrels, good shooting condition 10½ lbs. Handles super X \$22.50. J. W. Richard, R.R.\$2, Elkhart, Ind. 11-32

COLT WOODSMAN, as new, shoots Hi-Speed; extra clip \$4 Heiser holster \$20. James Rounds, Box 254, St. Charles, Ill. 11-32

SEDGLEY-WINCHESTER deluxe Hornet; new \$50 cash. See page 64 July Rifleman. Alfred Haugan, 1216 N. Lincoln, Aberdeen, S. Dak. 11-32

REMINGTON, Model 8A, .30 automatic, excellent \$32. WANT—5A or K-22, S. Williams, Mountain St., Williamstic, Conn. 11-32

8-POWER 1-1/8-inch FECKER with Winchester mounts \$50. Or trade for B&L prismatic spotting scope. C. L. Eimer, Silver City, N. Mex. 11-32

33 POWER Bardou Spotting scope, very good \$17.50. Cecil Howard, 4567 W. 33rd Ave., Denver, Colo.

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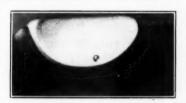
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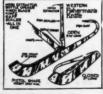
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SPOTTING SCOPE Stand \$1.00. Score sheets 60¢ dozen. Gummed target pasters 80¢ thousand. Sight black 25¢ bottle. Postpaid. Moving game target \$8.50. Mohawk Specialties, 1533 Eastern Parkway, Schenectady. 11-32

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INDIAN RELICS. Beadwork. Old guns. Curios, Coins, Minerals, Fossils. Catalog AND Arrowhead 6¢. Vernon Lemley, Northbranch, Kansas.

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OUTDOOR LIFE has for more than 35 years held a position in the front rank of magazines intended very largely for hunters. Its Gun and Ammunition Department is divided between Colonel Whelen, in charge of the "Rife and Pistol" section, and Captain Askins on the "Shotgun." Its price is 25 cents a copy, \$2.50 a year, the lowest price at which any outdoor magazine of equal size can be secured. An average monthly sale of 125,000 copies a month is guaranteed, under the exacting requirements of the Audit Bureau of Circulation, but its classified advertising rate is only 10 cents per word, minimum \$1. As a special offer to readers of The American Riffeman, you can secure free and postage paid with a trial six-months' subscription at \$1, three valuable pocket handbooks, "Wing Shooting," by Askins, "Big Game Hunting," by Whelen, and "Shooting Facts," by Askins, well-illustrated booklets of boiled-down facts, averaging 88 pages per book. Just ask for our three free hunting books when sending your order to Outdoor Life, 101 Outdoor Life Bldg... Mt. Morris, III.

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BOOKS WANTED—Pollard, Book of the Rifle; Williams, Game Trails of British Columbia; Howorth, On Headwaters of Peace River; Mattern, Handloading Ammunition; Baker, Modern Gunsmithing; Arkwright, The Pointer and His Predecessors; Parrish, Bob Hampton of Placer; McIhenny, Wild Turkey and It's Hunting; Hudson, Modern Rifle Shooting from American Standpoint; Milner, The Irish Setter. Quote only on copies of above in good condition. Abercrombie and Fitch Co.. 45th & Madison, New York City.

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N. R. A. LIFE MEMBERSHIP

A MONEY-SAVING ANNOUNCEMENT

THE NATIONAL RIFLE ASSOCIATION announces a new "easy payment" Life Membership plan which enables you to enjoy all the privileges of N. R. A. membership for life without overtaxing your financial position.

It is a simple plan, inaugurated at the request of several hundred friends and annual members of the Association who wish to satisfy a long felt desire to join the N. R. A. for life but who feel that a single payment of the full amount is too great an expenditure.

THE NEW "EASY PAY" PLAN

Briefly, this is the way the plan works: Instead of paying \$25.00 in one payment you may now obtain a *conditional* Life Membership certificate under the following conditions:

To non-members who wish to join the N. R. A. for life—\$3.00 down and 11 easy payments of \$2.00 each. Total \$25.00.

To annual members who wish to join the N. R. A. for life—\$2.00 down and 10 easy payments of \$2.00 each. Total \$22.00

The "easy payments" may be made at such time and in such amount as best suits the member, pro vided that all payments be completed not later than one year from date the conditional application is received at National Headquarters.

YOU CAN'T LOSE

And you can't possibly lose under this new plan, either. Because if you are unable to complete the payments and wish to withdraw your application for Life Membership the amount to your credit will be used to extend your membership on the annual (\$3.00 per year) basis.

Immediately upon receipt of the final installment the N. R. A. will issue one of the regular certificates of Life Membership together with the appropriate Life Member card, lapel button and shooting coat badge.

Here is what Life Membership buys—and what happens to your money:

BENEFITS

You will enjoy for life all the privileges of membership including a paid-up subscription to THE AMERICAN RIFLE-MAN magazine as long as you live.

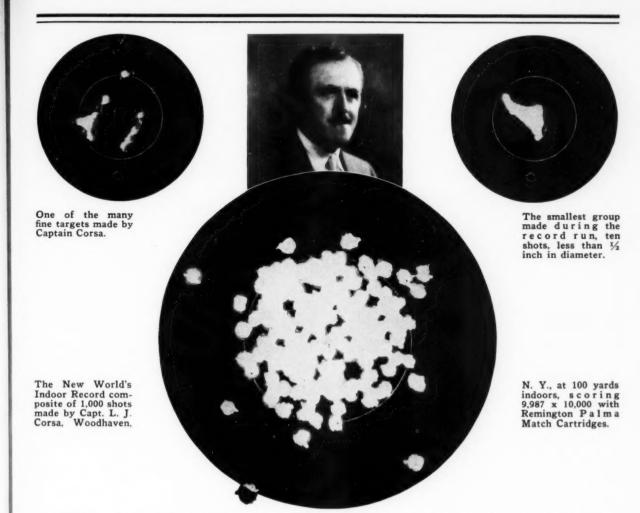
You will acquire the right to vote for the right sort of Directors to handle the Association's affairs, and as a voting member you will be eligible to election both as a Director and as a member of the Executive Committee. You will never be bothered with notices that your "N. R. A. dues are due" or that your subscription to the Rifleman has expired.

You will not be spending \$25.00. You will be investing it in the future development of the shooting game in America, for the funds derived from Life Memberships are invested in a

permanent fund in the nature of an endowment. They are not used for current expenses of the N. R. A.

You may, in accordance with the U. S. Revenue Act, deduct from your income tax (if any) the amount paid for Life Membership as a contribution to the N. R. A.,—a recognized non-profit educational corporation.

National Rifle Association, Suite 816 Barr Bldg.,		
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Yes-I am "sold on the N. R. A. for I	life."	
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Send me a conditional certificate of Li to it that a "credit stamp" for attachment the coming 12 months.	fe Membership, properly receipted, to in it to my certificate is sent me immediate	dicate credit of the enclosed remittance, and see ly upon receipt of each payment I make during
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NEW WORLD'S RECORD FOR PALMA MATCH

FIRST 500 SHOTS

World's records with Palma Match have become so common that a new one causes hardly a ripple of excitement among the Small Bore fraternity; but the record recently made by Capt. Lawrence J. Corsa of Woodhaven, N. Y., will certainly give shooters something to think about.

He began shooting on March 5, 1932, and each week thereafter, until June 25, he fired 50 or more shots at 100 yards on the 100-yard range of the Thirteenth Regiment Armory

in Brooklyn, N. Y. (Actually the range measures 106 yards.)

pleted his first 500 shots he had When Captain Corsa had comdroppe being In the three 9.987 new w shooti

Cap

was fired. The telescope was removed from the rifle each night and the rifle cleaned, which means that it was necessary to replace the telescope each time before firing.

It gives us a great deal of pleasure to acknowledge this remarkable shooting by Captain Corsa and to take this means of congratulating him on the fine marksmanship, courage and determination he has displayed through this long grind. We quote from Captain Corsa's letter: "So far this per-

formance clearly demonstrates two points conclusively: first, that Remington Palma Match is uniformly

consistent in high accuracy performance; second, that the 2-inch 10 ring should be discarded in favor of the 1-inch, since the percentage of accuracy using the 2-inch 10 ring is too great."

Captain Corsa had a long run of over 260 consecutive 10's, starting on May 21st and ending on June 11th.

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What a Girl.....

What a Cartridge!

18-year-old Student Brings Down 2 Polar Bears, Using Only 1 Western Cartridge for Each Animal

The girl in the picture is Miss Emmy Lou Sutton, 18-year-old daughter of Dr. Richard L. Sutton, of Kansas City, Mo. She went with her father to the Arctic, north of Spitsbergen. She saw two polar bears, one weighing nearly 1,000 pounds. She fired two shots—and got two bears.

Nobody in the Western Cartridge Company's advertising department could improve upon Dr. Sutton's letter. Here it is:

Gentlemen:

We have just returned from a long shooting trip in the Arctic, north of Spitsbergen. We used Western ammunition in the 6.5 mm. and .375 sizes, as well as for our shotguns, and the results were so very satisfactory that I thought you might like to know about it. The extreme cold did not appear to influence the ammunition in the least. We did not have a single miss-fire. My daughter killed two polar bears, one of

which weighed nearly 1,000 pounds, with her 6.5 Mannlicher. Only one Western bullet was required for each bear. She also killed seven large bearded seals with the same rifle and cartridge.

I also used a 9.3 Mauser, with imported ammunition (that caliber is not made in America), but as I said above, the most of our shooting was done with the 6.5 mm. and .375 Hoffman rifles, and Western ammunition.

Very truly yours,

(signed) R. L. Sutton

Whether you hunt at the poles or in the tropics, afar or at home, there's a Western Lubaloy cartridge designed especially for your purpose—accurate ammunition with terrific killing power. Non-corrosive priming and Lubaloy jacketed bullets protect your rifle against fouling and corrosion. Let's send you a copy of Col. Whelen's interesting booklet, "American Big Game Shooting." Sent free on request.

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The famous Model 74 Winchester is chambered to handle the .250-3000, .270 Winc., .30-06, 7 m/m, 7.69 m/m, and 9 m/m cartridges. Winchester bolt action. Strength and simplicity combined. Particularly fine stock dimensions.

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